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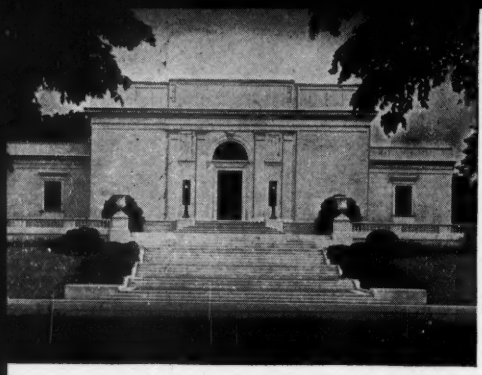


STRAIGHT FROM HEADQUARTERS

by ***ROBERT P. FISCHELIS,*** Secretary
AMERICAN PHARMACEUTICAL ASSOCIATION

Keep It Available

WITH the March issue of the *Scientific Edition* of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, every member of the ASSOCIATION will receive a Supplement which will present in a separate volume a brief history and summary of the activities of the AMERICAN PHARMACEUTICAL ASSOCIATION, its Constitution and By-Laws, the Certificate of Incorporation, the Code of Ethics, the list of officers of the Association and its Sections, and places of meeting since its founding; the official roster and pharmaceutical directory for 1948–1949 which gives the list of officers, standing and special committees and delegations, a list of the A. PH. A. local and student branches, a list of national pharmaceutical associations, a list of related national professional associations, lists of State pharmaceutical associations, accredited colleges of pharmacy, State boards of pharmacy, national pharmaceutical publications, sectional, State and local publications and a list of active members of the AMERICAN PHARMACEUTICAL ASSOCIATION.

The lists of the various associations and institutions, boards of pharmacy, etc., give also the name and address of the secretary. The list of active members is arranged alphabetically in two sections, those in good standing as of November 15, 1946, and those joining and in good standing for one year or more between November 15, 1946, and October 30, 1948. It is planned to issue revisions of this document annually and members are urged to keep it available for reference. Additional copies of this supplement will be available at ASSOCIATION headquarters in Washington, D. C., for $1.00 per copy.

Know the Facts

PHARMACISTS are expected to be men and women of more than average intelligence. One mark of intellectual attainment is the capacity and desire to think for one's self. It is human to want to know what the other fellow thinks and what he proposes to do in a given situation which must be met by a group. Certainly there is no surrender of freedom of action when one endeavors to learn what fellowmen are planning to do about anything. That is merely a part of necessary fact-finding. The surrender comes when, upon learning the facts about a situation and what colleagues or neighbors intend to do about it, one takes action which is not based upon an analysis of the facts and conscientious judgment, but merely upon crowd psychology.

"Getting on the band wagon" is considered good strategy at certain stages of a political campaign, but following the crowd in disseminating prepared information without knowing its source or its basis in fact, does not reflect much credit on the disseminator.

Failure to read the literature which pharmacists are continuously being asked to distribute makes many of them unwitting parties to schemes of propaganda which they would not favor if they gave them thought. The public health information prepared by the AMERICAN PHARMACEUTICAL ASSOCIATION and the U. S. Public Health Service for distribution to the public by pharmacists can be depended upon to reflect credit on the distributor. However, this is not true of many other types of literature offered for distribution "over the counter" from various sources.

A safe rule to follow in these matters is to

refuse to distribute any bulletins, circulars, pamphlets or other literature, which the established pharmaceutical associations or the individual pharmacist cannot completely endorse after careful reading and study.

There is a good deal of loose talk and writing these days on topics dealing with labor relations, medical care, taxation and education. Before your pharmacy becomes the distributor of free literature or information on any subject, make sure you know what the literature states and who sponsors it. Otherwise you may become an unwitting aid to the wide dissemination of propaganda which is quite contrary to the best interests of the public and the profession of pharmacy. It is better to refuse to distribute literature which you do not have time to read than to wake up suddenly to the realization that you have lent your prestige and facilities to a cause in which you do not believe or which you cannot conscientiously support.

When Doctors Disagree

THE controversy now raging about sickness insurance and methods of paying for medical care has many healthy aspects. Physicians are showing by their public utterances and individual as well as collective action that the best system of providing and paying for medical care has not been evolved as yet.

The American Medical Association has been carrying on studies in medical economics at its headquarters for years. Whether its staff findings and the current methods of interpreting and publicizing these findings are most helpful in a situation which has unfortunately precipitated medical care into the realm of partisan politics, remains to be seen.

We cannot get very emotional about the opposing points of view expressed by groups within the A.M.A. Although the debate between the doctors is not being carried on exclusively within the medical societies, the chances are that public airing of opposing views within the profession will hasten the development of some plan which will solve the problem without surrendering professional liberty and prerogatives to the point where this will affect the high quality of professional service which we have come to expect from our physicians.

In the meantime, pharmacists and pharmaceutical associations would be well advised to proceed somewhat slowly in "unalterably opposing" what the medical associations may be quite ready to accept when the time for working out compromises arrives. There is nothing quite so silly as passing resolutions which give blanket endorsement or record "unalterable" opposition to policies and issues sponsored by individuals or groups which may be modified or completely changed without notice to the endorser. Yet there are pharmaceutical organizations, which are being caught in that kind of a dilemma simply because their officers and members do not think things through.

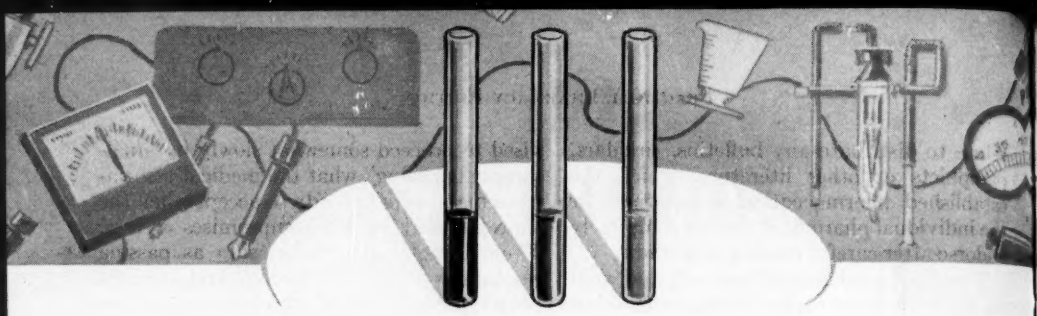
Pharmacy possesses a lot of prestige with the public which it should not dissipate through ill considered or hasty action. So far neither this profession nor any of the others in the health group has been consulted by organized medicine to any extent in developing "programs" of medical care for the American people.

The time may come when it will be realized that pharmacy's prestige with the millions of people contacted daily in the drugstores of the nation can carry greater weight in preserving free enterprise in the practice of medicine and the allied professions than the dollars paid to professional promoters whose hearts cannot be in the ideals which we think the physicians we meet in our daily work are fighting for.

Cooperation with FDA

The AMERICAN PHARMACEUTICAL ASSOCIATION has offered its cooperation to the Food and Drug Administration in contacting pharmacists rapidly in cases of emergency or in disseminating information as required on matters dealing with the dispensing of drugs. (This was explained in a Special Bulletin on March 9 to all State Boards of Pharmacy and State Pharmaceutical Associations.) Because pharmacies in most States operate under a State license and Boards of Pharmacy have a record of all such establishments, it is possible for them to reach the outlets which might have dangerous drugs at hand and thus facilitate their prompt recall in emergencies, if necessary.

In offering its cooperation, the ASSOCIATION had in mind the effectiveness of its bulletin service to State Pharmaceutical Associations and State Boards of Pharmacy.



THE PRACTICAL USE OF pH INDICATORS OF THE U. S. P. AND THE PREPARATION OF SELECTED BUFFER SOLUTIONS

Frank M. Goyan* and Helen C. Coutsouris*

THERE is little argument about the importance of knowing the *p*H of certain preparations, but there are many pharmacists who seem to stand in awe of the elaborate electrical instruments and attendant paraphernalia required in establishments specializing in the preparation of buffered solutions. This specialization should not blind us to the fact that satisfactory procedures for the preparation of *p*H indicator solutions are available in U. S. P. XIII.[1] These solutions are easily prepared and may be used with very little special equipment. In fact, it is possible to obtain a rough estimate of *p*H by making use of three indicators in connection with Table I.

Although experts agree that electrometric methods are superior to indicators for precise determinations of *p*H, there was a time when a great deal of careful work was done with indicators. So exhaustive was this early work[2, 3, 4] that a number of indicators are now available. However, it is impracticable to prepare all of the *p*H indicators and standard buffers listed in the U. S. P. in order to make a few *p*H measurements. On the other hand, it is difficult to know how to simplify the complete system without first doing more experimental work than most practical measurements justify.

In an attempt to simplify the use of indicators, one of us made a study of color matching with a view of selecting those indicators that exhibit the most reproducible colors under different conditions of illumination. The important outcome of this investigation was the discovery that it is feasible to cover the *p*H range from 4 to 8 with only two indicators, bromothymol blue and bromocresol green, and only one series of color standards ranging from yellow through green to blue.

This *p*H range of the two indicators is quite useful, and it may be extended by adding a third indicator, thymol blue. Thymol blue exhibits a transition from red to yellow in acid solutions (*p*H 1.2–2.8) and a transition from yellow to blue in alkaline solutions (*p*H 8–9.6). Although it might appear from the description of the colors that the yellow-blue range of thymol blue could be compared with the yellow-blue standards used for bromothymol blue and bromocresol green, this proved to be difficult under ordinary reading light because the blue color of thymol blue is admixed with red or purple. However, methods have been found for overcoming the effects of this dichromatism. These methods are practicable, but it is better to use ordinary thymol blue in ordinary white light than to eliminate this indicator entirely from the indicator set.

The rapidity, simplicity and reliability of the indicator method for estimating the *p*H of many clear, colorless solutions should also appeal to those who are equipped with elaborate *p*H meters. Not only does this method work quite well, but it extends the professional competence of the pharmacist by placing at his disposal test solutions of established value. Control of dichromatism may be accomplished by using a special light source made by securing a piece of special colored glass (Corning[5] light shade blue-green No. 4308 or 4-70) before an ordinary tungsten filament lamp contained in a suitable box or photographic "safelight." A

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single thickness of duPont green cellophane secured before a "daylight" fluorescent fixture will serve equally well. Ideas of this nature are of value in making use of dark corners for the effective display and utilization of professional equipment even though the volume of business requiring the determination of *p*H may seem to be too small to justify the initial investment.

Preparation of Indicator Solutions

It is suggested that the three indicator solutions, bromocresol green, bromothymol blue and thymol blue, be prepared according to the directions given in U. S. P. XIII.[1] A glass mortar may be substituted for an agate mortar if desired, and any inaccuracies in weighing out the samples of indicator or in standardizing the 0.05M NaOH may be compensated for by first adding less than the required volume of the sodium hydroxide solutions, then increasing the amount until trituration fails to cause a return of the yellow color of the partially neutralized indicators. The final solutions should have a green color when viewed through a thin layer of solution drawn into a medicine dropper or along the sides of the mortar. If the final solution is deep blue or purple the addition of a small amount of the solid indicator will correct this condition. The addition of one volume of a 0.2% solution of "Naphthol Green B Concentrated" (National Aniline and Chemical Co.) to nine volumes of 0.05% solution of thymol blue will minimize dichromatism under daylight conditions without diminishing the usefulness of the indicator under the special light sources described above.

Approximate pH Determination of Buffered Solutions

Whenever it is desired to estimate the *p*H of colorless buffered solutions, satisfactory estimation with an accuracy of about one *p*H unit may be made with the three indicators listed above and no more auxiliary equipment than a few clear two-drachm vials. For unbuffered solutions, such as pure water, solutions of many pure salts, etc., it may be necessary to use larger samples contained in uniform tubes or vials that make it possible to see the color imparted by a relatively dilute solution of the indicator. Unbuffered solutions are more difficult to work with by any method, electrometric or colorimetric, because the slightest trace of acid or base contained in the test solutions or on the walls of the containing vessel may produce a large change in *p*H. The basic principle of colorimetric determination is the same in any case, but the use of small samples (approximately 2 cc.) containing relatively large amounts of indicator simplifies the work.

Directions for using the simplified method follow: Into three clear uniform two-drachm vials place three separate 2-cc. portions of the buffer solution to be tested. Add two drops (about 0.1 cc.) of bromocresol green to the first vial, bromothymol blue to the second, and thymol blue to the third. The *p*H is read by observing the colors against a white background as well as by observing the comparison of one color with the next to detect slight differences in the yellows or blues produced by the different indicators. The system of using three indicators simultaneously has the distinct advantage that one color may be compared with another; without this aid it would not be possible to distinguish "yellow-green" from yellow or "blue-green" from blue. The color range of the three indicators is given in Table I.

TABLE I

Color Range of Three Selected *p*H Indicators

*p*H	Bromocresol Green	Bromothymol Blue	Thymol Blue[a]	Color Code[b]
1	Y	Y	R	Y = yellow
				R = red
2	Y	Y	O	O = orange
3	Y	Y	Y/O	Y/O = yellow-orange
4	Y/G	Y	Y	Y/G = yellow-green
5	B/G	Y	Y	B/G = blue-green
6	B	Y/G	Y	B = blue
7	B	G	Y	G = green
8	B	B/G	Y/G[a]	
9	B	B	G[a]	
10	B	B	B[a]	

[a] = extreme sensitivity to type of illumination (dichromatism).

[b] Colors may be observed against a white background under daylight or "daylight fluorescent" light. A filtered light source is described elsewhere in this report, and directions for modifying thymol blue are also given.

Indicator Paper and pH of Tears

A good grade of dry, washed filter paper may be saturated with 0.05% indicator solution and allowed to dry. Indicator papers prepared in this way with the three indicators of Table I may be used like litmus paper with the obvious exception that the colors will correspond roughly with those given in Table I. For more accurate comparison the methods suggested below for preparing color standards may be used by substituting pieces of indicator paper for vials. Errors inherent in the use of small samples are amplified when using paper; for this reason indicator papers should be

used with caution unless it can be established that the buffer capacity of the unknown solution under consideration is sufficient to prevent changes in *p*H due to traces of impurities in the air or on the paper.

Loss or gain of carbon dioxide is more troublesome when using paper, a point nicely demonstrated when determining the *p*H of tears with bromothymol blue paper. A small piece of this paper placed under the lower eyelid quickly becomes moistened with lacrimal fluid which produces a blue-green color corresponding to a *p*H of 7.4. However, the moist paper soon changes to blue when exposed to ordinary air because of loss of CO_2 from lacrimal fluid. Exhaled air or any other atmosphere which is rich in carbon dioxide will reverse the process, ultimately producing a yellow color.

Preparation of Color Standards

An ideal color standard is identical in every respect with the sample against which it is compared. The U. S. P. directions for the preparation of buffer solutions may be followed without great difficulty to produce buffer solutions that are useful in the preparation of color standards. If two-drachm vials are to be used for the unknown samples, the color standards should be contained in similar vials. The volume of buffer, volume of indicator solution, color of the glass, condition of light, etc., should be the same for each standard and for the unknown. If colored, unknown solutions are studied it is necessary to set up the comparison tubes in such a way that the observer is able to compensate for the color of the sample. Details for this type of accurate colorimetry are given in several books.[2, 3]

It is not the purpose of this paper to elaborate on the more accurate methods of color comparison. Instead, the authors present a simplified system that works quite well for most problems involving colorless solutions. The simplification is based upon selecting one series of color standards for three indicators. These standards are made from phosphate buffers by adding bromothymol blue to the phosphate buffers corresponding to the *p*H values italicized in Table II. This series of color standards may be related by use of Table II with the other two indicators; for example, a vial of buffer solution that shows a green color with bromocresol green may match the *p*H = 6.8 vial for bromothymol blue showing that the bromocresol green was contained in a solution having a *p*H of 4.6. A similar match with modified thymol blue solution would indicate a *p*H of 8.8. The colors produced in the buffer solutions may be duplicated roughly with drawing inks.

TABLE II

pH of Matching Colors with Three Indicators

Vial No.[a]	Bromocresol Green	Bromothymol Blue	Modified Thymol Blue[b]	Color[c]
1[d]	1–3.4	1–5.6	3.5–7.6	Y
2	3.8	*6.0*	8.0	Y_7B_3
3	4.2	*6.4*	8.4	Y_7B_3
4	4.6	*6.8*	8.8	YB = G
5	5.0	*7.2*	9.2	Y_3B_7
6	5.4	*7.6*	9.6	Y_3B_{17}
7	5.8–14	*8.0*–14	10.0–14	B

[a] Vials as nearly alike as possible, and similar to those used for unknowns, are recommended. Two cc. of buffer (phosphate) and 0.1 cc. of bromothymol blue are added to each vial. The vials may be mounted by cementing them to a strip of glass or clear plastic above a white card on which the three *p*H values for each vial are inserted.

[b] If thymol blue is not modified as described under "Preparation of Indicator Solutions" (above), one of the special light sources should be used. All of the indicators are more difficult to use under unmodified tungsten filament lamps, thymol blue being especially bad in this respect.

[c] These colors may be duplicated roughly on any hard-surface drawing paper such as Sheffield drawing paper No. 7H with Higgins drawing inks. Yellow (Y) represents drawing ink No. 4025 (undiluted). Blue (B) is made by diluting 0.75 cc. of blue ink No. 4145 with 10 cc. of distilled water. The yellow and the diluted blue are mixed in the volume ratios indicated by the subscripts. For example, Y_7B_3 represents 17 drops of yellow and 3 drops of diluted blue mixed together. Each mixture is painted on drawing paper with an artist's brush in an area designated by the corresponding *p*H values for the three indicators.

[d] Diluted stock solution of sodium or potassium biphosphate (*p*H about 4.5) may be used to develop the required yellow color. The recommended dilution of 1:4 is not critical because any *p*H value between 1 and 5.6 will develop the acid color of bromothymol blue.

It will be noted that Table II is constructed with an interval of 0.4 *p*H units between standards. This simplification is introduced in order to facilitate rapid comparison for work not requiring highest accuracy. Skilled workers in this field may find this reduction in the number of standards to be a source of confusion because they are reluctant to sacrifice the accuracy they have become used to obtaining, but unpracticed observers find it a great advantage not to be required to make the careful observation demanded when the difference between standards is barely detectable. The simplified method outlined above is not intended to replace standard methods of color comparison which have been worked out in great detail by many careful workers.[2, 3, 4]

However, the use of a single standard that permits rapid approximation of *p*H has its place, even in well-equipped laboratories. The *p*H of the surface of agar plates, of various gels and ointments, and of many other substances difficult to adapt to ordin-

ary electrometric apparatus may be studied with considerable facility. Because of the importance of certain problems of this nature, the preparation of additional indicators may be required to extend the *p*H range of Table II or otherwise to supplement the three indicators of this table. Phenol red is often used in biological work in preference to bromothymol blue. This indicator should be standardized like bromothymol blue by using vials of buffer solutions having *p*H values in the useful range of the indicator as given in U. S. P. XIII. Color charts for phenol red and methyl red may be made as suggested in the footnote to Table II by the substitution of a diluted yellow (9 cc. of yellow No. 4025 plus 1 cc. of water) for the undiluted yellow and of undiluted carmine drawing ink No. 4095 for the diluted blue. Yellow to purple charts that have been found suitable for bromocresol purple and cresol red are made from undiluted yellow drawing ink No. 4025 and an undiluted mixture of 8 cc. of carmine ink No. 4095 and 2 cc. of violet No. 4105. All of the drawing inks used were purchased on the retail market as Higgins inks, but no attempt was made to verify the reproducibility of the manufacturer's standards.

The Selection of Buffers

Buffers of the U. S. P. are evidently selected with the view of obtaining reproducibility of *p*H values rather than for the purpose of providing suitable vehicles for dispensing drugs. The presence of unknown amounts of barium ion in the sodium hydroxide solutions is necessary to eliminate the hazard of error due to undetected absorption of carbon dioxide, but the deliberate introduction of this toxic impurity is not desirable in buffer solutions intended for therapeutic use. Potassium biphosphate is certainly much more likely to be reproducible as a *p*H standard than is U. S. P. sodium biphosphate, but a high concentration of potassium ion is usually not desirable for general use. For these reasons pharmacists often hesitate to prepare U. S. P. buffers.

Buffer systems in common use have been described elsewhere[6,7] and are usually sufficiently accurate to be used for the preparation of buffer standards not intended for work of the highest precision. The carbonate boric acid system might serve quite well for the preparation of color standards with thymol blue. It is not advisable to use any carbonate buffer system as a permanent standard in the neutral or slightly acid region because of the danger of loss of carbon dioxide. The borax–boric acid system might serve for phenol red, or a Sørensen phosphate system may be used in the more acid region while the carbonate–boric acid system is used for the higher *p*H values.

TABLE III

The Sørensen Sodium Phosphate Buffer System Recalculated to Yield Approximately Isotonic Solutions at Equal *p*H Intervals

*p*H	Solution I[a], 0.5M Sodium Biphosphate U. S. P. XIII. Cc.	Solution II[b], 0.5M Sodium Phosphate U. S. P. XIII, Cc.	Solution III[c], Suitable Preservative Plus Distilled Water
4.5 (approx.)	50	0	Dilute to 200 cc.
5.8	45.1	4.9	Dilute to 200 cc.
6.0	42.6	7.4	Dilute to 200 cc.
6.2	39.1	10.9	Dilute to 200 cc.
6.4	34.6	15.4	Dilute to 200 cc.
6.6	29.2	20.8	Dilute to 200 cc.
6.8	23.4	26.6	Dilute to 200 cc.
7.0	17.8	32.2	Dilute to 200 cc.
7.2	12.8	37.2	Dilute to 200 cc.
7.4	8.9	41.1	Dilute to 200 cc.
7.6	6.0	44.0	Dilute to 200 cc.
7.8	4.0	46.0	Dilute to 200 cc.
8.0	2.6	47.4	Dilute to 200 cc.

[a] Dissolve 69.0 Gm. of $NaH_2PO_4.H_2O$ to make one liter of stock solution.

[b] Dissolve 134.0 Gm. of $Na_2HPO_4.7H_2O$ to make one liter of stock solution.

[c] Phenylmercuric nitrate (1:2000), 0.05%, is one of several suitable stock preservatives. Add measured quantities of Solutions I and II and about 4 cc. of this stock preservative solution to a 200-cc. volumetric flask, then dilute to the mark with distilled water. More preservative may be used to advantage if it is known that higher concentrations are not harmful. The selection of preservative is a matter of judgment; in doubtful cases it may be omitted altogether if suitable precautions are taken to provide fresh solutions at the first sign of mold growth.

The principal disadvantage of the Sørensen phosphate buffer system is that it is calculated for regular volume intervals instead of regular *p*H intervals. (See TABLE III.) Otherwise, the Sørensen phosphate system using U. S. P. sodium phosphate and sodium biphosphate is entirely satisfactory for bromothymol blue standards, provided both salts meet U. S. P. specifications with respect to water content of the solids. It is usually possible to check this point by selecting bottles of solid chemicals that have been well stoppered and have not shown any evidence of excessive change of crystal appearance. If the crystals have lost water they usually become coated with white powder, and if they have picked up water they usually tend to clump together. However, the high quality of most commercially available inorganic salts justifies cal-

***p*H INDICATORS AND BUFFER SOLUTIONS** (*continued on page 188*)

WHAT'S HAPPENING IN THE MEDICAL CARE FIELD

Pharmacy under the British National Health Service

WHAT has been happening to pharmacy in England under the "National Health Service?" How many pharmacists have joined the system? What has been its effect on prescription practice? How has it affected the type of medication prescribed? To what extent, if any, has it affected the purchase of drugs or medication? Are the people becoming more medicine minded?

What of the pharmacist's income? What does he think of the system as it affects pharmacists? What do the doctors think? How do the British people feel about it?

These are some of the questions that arise when American pharmacists think about pharmacy's role under the proposed national health insurance bills which have been introduced in Congress.

Some of these questions are not easy to answer. The British Act has been in effect only a little over six months—since July 5, 1948; and there are conflicting opinions about the program. However, considerable insight can be obtained from a study of the articles and the letters in the English pharmaceutical and medical journals.

British National Health Service

Under the National Health Service any person may receive, when he needs it, free medical, dental and nursing care. These include:

1. Care by general practitioner and by specialist, by dentist, and by oculist.
2. Complete hospital care with treatment continuing during convalescence and rehabilitation.
3. Home nursing and domestic help when this is required because of the illness of the homemaker.
4. All necessary drugs and appliances such as hearing aids, eyeglasses, false teeth, etc.

In addition to these free goods or services such items as expensive frames for glasses and private accommodations in hospitals may be obtained through payment of special fees.

To date, both doctors and patients carry on in much the same pattern that they did before. Doctors keep their same offices. Patients come in as before and wait their turn, or the doctor goes to their home as he did when they were private patients. Hospitals and clinics are going on much as they did before as far as the patient can see. To get his medicine, the patient still takes his prescription to the pharmacist of his choice.[1]

The act provides for the establishment of health centers where doctors and dentists may have their offices and where pharmaceutical services, local health services and health education work would be available. Clerical and nursing help would be available at these centers, and group practice could develop there. However, the centers have not been developed as yet because of the great need for other construction in Great Britain. The pharmacists object to health centers because, if established, they would take business away from the already established retail "chemists" shops.[2]

Everyone under the Health Service may choose or change doctors as he pleases; doctors in the Service may accept or reject any patient. People may stay out of the Service and make their own private arrangements for medical care if they wish. A doctor may remain wholly in private practice or may enroll in the Service for part of his time and accept private patients for the rest.[3]

A doctor, dentist or a pharmacist who wishes to practice under the Health Service makes a contract with the Executive Council of his area—which is composed of local doctors, dentists and pharmacists and of

representatives of the local government—and is paid by them. A doctor cannot be ordered to practice in any particular area. However, the Executive Council may refuse permission to a doctor who wishes to enter a district which is held to be "over-doctored" already.[3]

English Health Insurance Not New

It should be pointed out that health insurance is not a new experience for Great Britain. N. H. I., or compulsory National Health Insurance for wage earners in the lower income brackets, has been in effect since 1911. Care by a general practitioner along with necessary medicines was available to the workers but not to their families under N. H. I. In addition to this insurance scheme, there was a publicly financed service for the destitute sick.[4] Many of the regulations of the N. H. S. (National Health Service) refer to the methods or "forms" used under N. H. I., and this has probably meant an easier adjustment to the new Service.

How Is N. H. S. Paid For?

For the first nine months, only 13% of the cost of the Health Service is expected to come from Social Insurance Contributions, 2% from local revenue, 11% from miscellaneous funds and the remaining 74% from national taxation, according to estimates made for England and Wales.[4]

Everyone between sixteen and sixty-five years of age buys stamps at the Post Office for his social insurance contributions. For example, employed men over eighteen years of age pay about 98 cents a week, but only about 15 cents of this goes to the Health Service and the rest goes for old age and other social security benefits. People over sixty-five and under sixteen can belong to the Health Service without any insurance payments.[5]

How Much Do These Services Cost?

The costs are running about one-third higher than had been estimated. According to official estimates in July, 1948, the net cost for England and Wales alone would be about $720 million.[4] On February 9 the Goverment told the House of Commons that they would need $211 million more for this period.[6]

For eye-testing and spectacles the cost in the first three months was about $3.9 million; for dentists' services and dentures it was about $4.8 million.[7]

What Do Drugs Cost?

The cost of drugs for this same three months' period was about $7.6 million. One year of the prescription service would cost about $88 million, according to *Lancet*, an independent medical journal.[8] This estimate was based on the current rate of prescriptions (160 million a year) and an average price of 2*s.* 8½*d.* (about 54 cents).

The Pharmaceutical Journal (the official organ of the British Pharmaceutical Society) believes that the total cost of pharmaceutical benefits will be about $92 million for the full year.[9]

How Many Are in the Health Service?

Between 95 and 98% of the population of England and Wales, or about 40 million people, have joined doctors' lists or "panels" to receive the free medical care. Nearly 90% of the doctors and dentists have joined the service according to a report made to the House of Commons on January 21.[10] In November, 18,165 doctors out of 21,000 and 8519 dentists out of 10,000 had joined the Service. Britain has some 15,000 chemists' shops served by 17,000 pharmacists and 14,000 of the chemists with shops had joined the Service.[11]

What Does the Pharmacist Do Under N. H. S.?

The pharmacist who wishes to join the National Health Service applies to the Executive Council of his area on a prescribed form. He can withdraw from the Service but this usually requires a three months' notice.

While he is a "contractor"—that is, in contract with the Executive Council—his name is on the "Pharmaceutical List" which the Executive Council publishes. This list contains the names and places of business of the "chemist-contractors" as well as the days and hours during which the pharmacy is open.

The regulations require that one or more places of business must be open at all reasonable times. Therefore, a "scheme for a proper pharmaceutical service" is drawn up by the Executive Council after consultation with Pharmaceutical Committees. This

scheme is called an "organized rota service" because the pharmacies rotate the extra hours, and there is a special payment—"the rota fee"—for such hours of work.

The pharmacist who has contracted with the Executive Council must supply drugs and appliances to any one presenting a prescription on the official prescription form which is signed by a doctor or dentist who is on the medical or dental list of the Council.

The pharmacist sends these official prescriptions to the Executive Council every month. "Pricing Bureaus" in the offices of the Council go over these forms and send the payments to the pharmacist.[12]

The payments to be made to pharmacists were worked out in a series of negotiations between the Ministry of Health and the National Pharmaceutical Union. They can be changed by the "Pharmaceutical Whitley Council which is to be available to deal expeditiously with changing conditions."

Under the arrangements agreed to in June, 1948, the ingredients of medicines and appliances are to be paid for at "current wholesale prices as contained in the Drug Tariff" with, in addition, "an on-cost allowance of 33 1/3%." The Drug Tariff is a list of items and prices which was used under the old National Health Insurance scheme (N. H. I.). A new edition has now been issued.

Special rates are paid for dispensing fees for "special preparations extemporaneously prepared" as, for example, $1.50 for sterile preparations for intravenous injections of 500 cc. and over. For all other prescriptions an average rate of 20 cents is paid. Payments for containers are made at the average rate of four cents. Additional payments are made for prescriptions marked "urgent" by the doctor and dispensed when the shop is not open for other business.[13]

Prescription Practice under N. H. S.?

Pharmacists are now dispensing nearly 100% more prescriptions than a year ago according to *Lancet*.[8] This increase is not all due to the fact that medicines are supplied without charge; it is partly due to the fact that doctors under N. H. S. are not allowed to do their own dispensing except in some rural areas and for private patients.

At the present rate, N. H. S. prescriptions would total about 160 million per year, which is about two and one-half times the 66 million prescribed under the earlier N. H. I. The average cost per prescription has been 54 cents.

The cost of each prescription is about 50% higher than under N. H. I. but this is largely due to the improvement in dispensing fees which are more in line with private dispensing charges. The quantities prescribed are often larger than before. This is believed due to the fact that the busy doctor wishes to postpone the day when he must see the patient again to give him a "repeat" prescription.

Increase In Proprietary Medicines

There has been considerable increase in the proportion of proprietary medicines prescribed. About 5% of all the items ordered under N. H. I. were proprietary. Now from 7 to 10% of the prescriptions are for proprietaries and in a few areas the proportion is much larger.[8]

An example of the effect of six months of N. H. S. on one pharmacy in Worthing is given in *The Retail Chemist*, London, for January, 1949. Its dispensing showed an over-all increase of 85%, although its private dispensing decreased 28.5%. Proprietaries made up 24.3% of the N. H. S. prescriptions.

Although their average price per prescription was just under 5*s*. ($1.00), about 20% of their prescriptions were over 5*s*. This compared with an average price for private prescriptions of 3*s*. 4 1/2*d*, before N. H. S. "It would seem from this that National Health Service dispensing *at the moment* is paying rather more than did our private work, but of course the cost of the ingredients in the N. H. S. prescriptions is much higher owing to the tendency of the prescriber to order expensive items now that the state pays; but I can say that the fees alone for July... paid for the staff wages of the dispensing department," *The Retail Chemist* stated.

This pharmacist also reported that twice as much insulin was sold in the six months of N. H. S. as in the corresponding six months of 1947, "yet we rarely sell insulin over the counter now." Altogether counter-trade has declined about 10%, he reported. "Vitamin preparations, asthma remedies, the paraffin emulsions, malt and oil are not being sold over the counter for cash, but nationally advertised proprietaries continue to be sold

much as before, and sales of all our own cough mixtures, etc., have not declined."

The Pharmaceutical Journal[14] reports a survey of representative pharmacies throughout the country at the end of six months of N. H. S. This showed an increase of 2.5 times the number of prescriptions as compared with the previous six months. But private dispensing has fallen off from 25% in some cases to as much as 74% in one case.

Difficulties over supplies have been worked out; manufacturers and retailers see no reason for serious delays in the future.

According to some manufacturers the demand has been particularly great for the galenicals; syrups, malt and cod-liver oil and other medicaments for children; and, to some extent, phenobarbitone.[8]

Pharmacists Carry Heavy Load

The growth in dispensing has made heavy calls on the time of pharmacists, and non-professional work has to be left to unqualified assistants. In some ways the pharmacist's work is simplified; proprietaries, of which more are now prescribed, are easier to dispense than individual prescriptions. And N. H. S. prescriptions are simply filed instead of having to be copied into a book as private prescriptions are.[8]

The pharmacist's principal trouble is over delay in the payment of his accounts under N. H. S. This delay is much worse in some areas than in others. Apparently pricing bureaus in some areas have been snowed under with the volume of prescriptions. To remedy this difficulty various changes have been made in the way payments are handled. In July, pharmacists were instructed to sort out the prescriptions which they sent to the Council each month so that all those of net ingredient cost of 5*s.* and over were placed on top of the pile. "Junior pricers and the many trainees cannot tackle expensive prescriptions," the instructions said. The pharmacist also was told to state the total number of prescriptions which he had sent in for the month so that Councils which were unable to make complete payments by the 15th of the following month could make a payment on account. This payment for July was 1*s.* 8*d.* (about 33 cents) per prescription.[15]

The pricing method for certain areas for August and September prescriptions with an ingredient cost below 5*s.* was based on the chemist's individual average for July subject in each area to an adjustment up or down based on sample bundles of prescriptions which would be priced in detail from the same area.[16]

New Method of Payment

On January 1, 1949, a new method of payment was put into force which combined averaging and payment in advance. It also required the pharmacist to sort his prescriptions into five bundles, and one indignant pharmacist referred to this task as consuming "ill-spared time."[17]

The effect of the Act on the pharmacists' earnings cannot be measured very well as yet. "Against the gain represented by a greater total of prescriptions dispensed has to be set the reduction by 50% or more in private prescriptions which are more profitable to him than those dispensed under the Act." There are some reports that over-the-counter business is reduced but other pharmacists deny this. "For the more expensive drugs patients are certainly now referring more often to their doctors for a prescription, but for the 'homely' remedies the demand is unabated, patients continuing as before to purchase these privately."[8]

Doctors and Dentists in N. H. S.

Dentists have been earning such high incomes under N. H. S. that the Government has issued a regulation which, February 1, 1949, will cut in half dentists' earnings in excess of $19,200 per year. The Ministry of Health stated that 20% of the dentists in the Service are at present earning at this rate or over. *Lancet*[18] reported some dentists earning at the rate of $48,000 a year.

Dental care is paid for on the basis of fees for separate treatments. On the basis of estimates made a few years ago, 80% of the British people were going without any dental treatment. The rush for treatments under N. H. S. has kept dentists working long hours and has given them incomes far greater than those they could earn in private practice.[19]

Doctors' earnings have not been nearly as high. In fact, the family doctor has been having a hard time, in many cases. A general practitioner is allowed to have a maximum of 4000 patients. He is paid a fee of about 18*s.* per year for each patient on his "panel." Where he has this maximum list

his gross income would be $14,400 in capitation fees. He is also allowed fees for mileage, maternity work, anesthetics, drugs and supplies, etc. In certain cases he may be paid a basic salary of $1200 a year and lower capitation fee.[19]

However, many doctors do not have the maximum number of patients, while their private practice has fallen off far more than was expected. According to an estimate in *Lancet* the income of some doctors in residential and rich suburban areas has fallen as much as 50 to 60%. But in compact industrial practices incomes have risen by a quarter or more. "On the average practitioners seem to believe that their annual earnings will be reduced by about a third. At the same time the amount of work and responsibility has increased."[20] Some of the salary difficulty comes from the fact that the doctors themselves refused to accept the Government's suggestion for a basic salary which would have helped the small practice which has lost its private well-to-do patients.[21]

Complaints under N. H. S.

At the same time there are many complaints—as can be seen in the letters to the *British Medical Journal*—about the difficulties and problems involved in working with the Service. Crowded doctors' offices make it difficult to give patients adequate care and attention.

"Most practitioners regret," says *Lancet*,[20] "that the price of more equal attention for all must be less attention for each. In the long view the only solution is to have more doctors, and in the short to conserve the doctor's time for his strictly professional work."

What of the Future?

In spite of many obvious problems and many complaints about the National Health Service, there is apparently a basic acceptance of it not only by the millions of patients who have joined it but by the professional people who must work with it. Problems of payment and administration can be and are being studied, and adjustments are being made or will be made to suit the needs revealed. Lord Horder, formerly the King's physician, reported in November that he had received over 1700 letters from physicians agreeing "that something should be done to ensure the freedom of medicine from outside control." Nevertheless, "the majority of doctors, like the majority of patients, have faith in the Service," says *Lancet*.[20]

In looking at "Pharmacy in 1948," the *Pharmaceutical Journal*[22] said:

"The Most Important Event of the year was the operation on July 5 of the National Health Service, which, whatever its shortcomings at the moment, will have profound effects not only on the practice of pharmacy but on the life of the whole community. In their own particular sphere, pharmacists can look back with justifiable satisfaction on their achievements of the past twelve months, and if the scheme has creaked a little now and then it is not because of remissness on the chemists' part."

REFERENCES

[1] Descriptions of the Act and of the way it is working are given in R. K. McNickle, "British National Health Service," *Editorial Research Reports*, 1, No. 2 (1949); B. M. Davis, "The British National Health Service," *Public Health Reports*, 64, 161–191(1949). The hospital services are well described in *Hosp. Management*, 67, 43–47(1949).

[2] *Pharm. J.*, 107, 134(1948); 108, 2(1949).

[3] Jameson, Sir Wilson, "Britain's New Health Law," *Surrey Graphic*, 37, 259–261(1948).

[4] British Information Services, *Health Services in Britain*, 1948, pp. 4, 15; Davis, *Pub. Health Reports*, 64, 189(1949).

[5] British Central Office of Information, *Family Guide to the National Insurance Scheme*, pp. 4–9.

[6] Parliamentary Debates, House of Commons (Hansard) Feb. 17, 1949, col. 1355.

[7] *Brit. Med. J.*, 1948, Part 2, 864.

[8] *Lancet*, 1948 903–904.

[9] *Pharm. J.*, 108, 20(1949).

[10] *New York Times*, Jan. 22, 1949.

[11] *Pharm. J.*, 107, 345(1948); *Lancet*, 1948, 903.

[12] *The National Health Service (General Medical and Pharmaceutical Services), Regulations*, 1948, No. 506, London; *Pharm. J.*, 106, 212 ,213, 227–230(1948).

[13] *Pharm. J.*, 106, 441(1948). Temporary arrangements for the first few months were to include payments for prescriptions at the basic rates of the N. H. I. Drug Tariff plus 16⅓%.

[14] *Pharm. J.*, 108, 39(1949).

[15] *Ibid.*, 107, 55(1948).

[16] *Ibid.*, 107, 133(1948).

[17] *Ibid.*, 107, 431(1948); 108, 4; 108, 32(1949). For discussions of pricing problems see, also, *ibid.*, 107, 329, 359(1948).

[18] *Lancet*, 1948, 984–986; *Brit. Med. J.*, 1949, Supp. 13.

[19] *Brit. Med. J.*, 1948, Supp. 145; 1948, Part 2, 78–79, 121; Davis, *Pub. Health Repts.*, 64, 184–186(1949).

[20] *Lancet*, 1948, 821, 823–825.

[21] *Ibid.*, 1949, 25.

[22] *Pharm. J.*, 107, 432(1948).

Make reservations *now* for the 1949 A.Ph.A. Covention—April 24 to 30

A.Ph.A. Housing Committee, Jacksonville Tourist and Convention Bureau, 307 Hogan St., Jacksonville 2, Florida

ACCREDITATION STANDARDS, INSPECTION PROCEDURES ARE CHANGED

THE American Council on Pharmaceutical Education has made important changes in its accreditation standards and inspection procedures and techniques. In general, the changes are in conformity with the recommendations of the Pharmaceutical Survey, and are intended, in part, to serve the aims, purposes and objectives of that undertaking.

The new standards were distributed to the sponsoring organizations, the Boards and Colleges of Pharmacy, all of whom were invited to submit suggestions, criticisms and recommendations in writing or orally at a hearing held for that purpose. All comments were given careful consideration in the preparation of the standards as finally approved.

Of major interest is the decision of the Council to classify colleges of pharmacy as A, B, C or Y, depending entirely upon their degree of compliance with Council Standards, as follows:

Class A—Those colleges which have no important deficiencies.

Class B—Those colleges which have deficiencies that can be corrected promptly by administrative action.

Class C—Those colleges having deficiencies which will take considerable time and effort to correct. A college in this class will be given a period to be determined by the Council in which to correct its deficiencies or show cause why it should not be dropped from the accredited list but in no case shall this period exceed three years.

Class Y—Newly established colleges which have at least two years of their four-year curricula accredited. Accreditation in these instances will be temporary and a college thus accredited will be designated as a Y2 or Y4 to indicate the number of years of the curriculum which has been accredited.

A class Y college which does not apply for full accreditation or one which applies for full accreditation but does not meet all the requirements for accreditation as a Class A college within one year after the full four years of its curriculum are in operation, will be required to show cause why it should not be dropped from the accredited list.

Any reference to accreditation by the Council in bulletins or other publicity issued by a college of pharmacy shall indicate its classification and be stated as follows: "(name of institution) is accredited by the American Council on Pharmaceutical Education as a Class (A, B, C or Y) college."

There are many reasons for these classifications. In the first place, prospective students are entitled to know the relative standing of the schools of pharmacy, and particularly that of the college which he contemplates attending.

It was felt also that classifying colleges as A, B or C would stimulate the "A" institutions to maintain and sustain their present high standing.

Such listings, too, would be conducive to more rapid improvement and betterment upon those institutions whose present status does not justify "A" rating.

Classifications of this kind have been helpful in raising educational standards in other professional fields, and there is every reason to believe that they will have a salutary effect upon colleges of pharmacy.

The accreditation standards and inspection techniques as now worked out will seek more complete and more illuminating information with respect to faculty personnel, teaching facilities, classroom and laboratory space, library, administration, budgetary control, and other pertinent facts bearing upon the adequacy of the colleges of pharmacy to provide satisfactory training for pharmacists.

While the accreditation standards and methods of operation have been substantially strengthened and revised, these steps have been taken by the Council in order to give it a practical approach to the facts, factors and problems involved in the evaluation of educational methods as exemplified by the curriculum and general fitness of colleges of pharmacy.

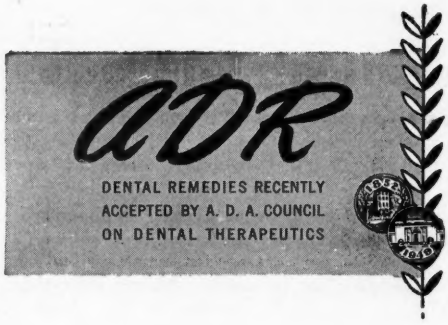
All colleges of pharmacy have been furnished with copies of the revised accreditation standards. Future inspections will be based upon the new standards.

The whole accreditation policy of the Council is based upon the intention to have "A" schools maintain their "A" rating. The Council also aims at having "B" and "C" schools become "A" schools without undue delay.

The Council visualizes only "A" colleges of pharmacy, once its accreditation program becomes in full force and effect.

$2,500,000 for Polio Research

A broad program for polio research and educational projects, involving funds in excess of $2,500,000, has been approved for 1949 by the National Foundation for Infantile Paralysis. Later in the year, it was disclosed, other grants will be announced. The present list of projects bring to $23,600,000 the total amount authorized for research and education by the National Foundation since 1938.



Admission to Accepted Dental Remedies *means that a product and the methods by which it was marketed at the time of consideration were not found to be in violation of the published rules of the Council on Dental Therapeutics. A summary of the rules appeared in This Journal, 7:153 (April), 1946. Accepted products are reconsidered periodically.*

ANTIBIOTICS AND ANTISEPTICS[1]

Crystalline Penicillin G Sodium—Merck: In vials containing 100,000; 200,000; 500,000 and 1,000,000 units. Manufactured by *Merck & Co., Inc., Rahway, N. J.*

Penicillin Potassium Troches, 1000 Units: Stated to contain crystalline penicillin G potassium, tragacanth, acacia, sodium carboxymethylcellulose, cane sugar, magnesium stearate and flavor. In bottles of 24.

Penicillin Potassium Troches, 5000 Units: Stated to contain crystalline penicillin G potassium, tragacanth, acacia, sodium carboxymethylcellulose, cane sugar, magnesium stearate and flavor. In bottles of 24 and 250.

Crystalline Penicillin G Potassium—Abbott In vials containing 5,000,000 units.

Penicillin Potassium Buffered Tablets, 50,000 Units: Stated to contain crystalline penicillin G potassium, calcium carbonate, cane sugar, corn starch, acacia, talc and magnesium stearate.

Penicillin Potassium Buffered Tablets, 100,000 Units: Stated to contain crystalline penicillin G potassium, calcium carbonate, cane sugar, corn starch, acacia, talc and magnesium stearate.

Manufactured by *Abbott Laboratories, North Chicago, Ill.*

NUTRITIONAL FACTORS[2]

Ascorbic Acid Tablets, 300 mg.: Each tablet is stated to contain 300 mg. ascorbic acid, U. S. P. Manufactured by *Crest Laboratories, Inc., Burbank, Calif.* Distributed by *Formula Products Co., Los Angeles.*

Enforbec Vitamin B Complex with C Tablets: Each tablet is stated to contain thiamin hydrochloride, 10 mg.; riboflavin, 5 mg.; niacinamide, 100 mg.; pyridoxine, 1 mg.; calcium pantothenate, 10 mg.; ascorbic acid, 100 mg.; liver extract B fraction, 1 grain; dried yeast, 1 grain; plus excipients, lubricants and binders. Distributed by *Harrower Laboratories, Glendale, Calif.*

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[1] See *Accepted Dental Remedies*, Ed. 14, p. 59.
[2] See *Accepted Dental Remedies*, Ed. 14, p. 136.

SURGEON GENERAL SCHEELE'S NATIONAL PHARMACY WEEK MESSAGE ➡

SURGEON General Scheele's message to the AMERICAN PHARMACEUTICAL ASSOCIATION on the occasion of National Pharmacy Week is reproduced on the facing page. It reflects the general recognition given to this year's program dedicated to public education on cancer control.

The Surgeon General also announces that the U. S. Public Health Service will continue to cooperate with the AMERICAN PHARMACEUTICAL ASSOCIATION in a long-range program of health information. During 1949 and 1950, the year-round program currently devoted to cancer information will be extended to heart disease. Bulletins and counter cards giving information about cardiovascular diseases will be issued periodically to all participating pharmacists.

General plans for the year-round program were sent to more than 49,000 pharmacies in February and each pharmacy was given an opportunity to participate. The ASSOCIATION invites other pharmacists, who did not respond to this invitation, to join the continuing year-round program by writing now to the AMERICAN PHARMACEUTICAL ASSOCIATION, 2215 Constitution Ave., N.W., Washington 7, D. C. ➡

FEDERAL SECURITY AGENCY
U. S. PUBLIC HEALTH SERVICE
WASHINGTON 25, D. C.

IN REPLYING
ADDRESS THE SURGEON GENERAL
U. S. PUBLIC HEALTH SERVICE

February 10, 1949

Doctor Ernest Little, President
American Pharmaceutical Association
2215 Constitution Avenue, N.W.
Washington 7, D.C.

Dear Doctor Little:

I am pleased to learn that the American Pharmaceutical Association has again decided to give public health an important place in the activities of National Pharmacy Week in 1949.

Already the public information programs of the Association, in cooperation with the American Cancer Society and the Public Health Service, have proved to be an important factor in focusing public attention on cancer. The continuing interest of pharmacists in this and other major health problems is particularly needed because of their day-to-day contacts with the public—the sick and the well, and the supposedly healthy.

If pharmacists continue to watch for opportunities to refer patients to physicians for diagnosis and treatment of cancer, heart disease, and other serious ailments, the opportunities for health of millions of persons will be increased.

I am therefore especially gratified to learn that the efforts of the American Pharmaceutical Association in the field of cancer will now be extended to heart disease. The plan is to provide bulletins for the pharmacists, giving information about cardiovascular diseases. As in the cancer information program, other display materials addressed to the public will emphasize the importance of early diagnosis and treatment of heart disease. Through the National Heart Institute and the Public Relations Committee of your Association, both the medical and pharmaceutical professions can be assured that these materials are scientifically accurate and that they conform with professional policies.

Once again the Public Health Service looks forward to working with the pharmacists of America for better national health--this time on a broader scale than ever before. With more than four billion people visiting pharmacies annually, the pharmacist is a key person in all our efforts to bring more people to proper diagnosis and treatment in the early stages of their disease.

Sincerely yours,

Leonard A. Scheele
Surgeon General

96th A. Ph. A. Convention to Consider Controversial Health Insurance Plans . . . Pharmaceutical Survey Recommendations . . . Current Legislative and Professional Problems

JACKSONVILLE, "Gateway City of Florida," will play host to the 96th Convention of the AMERICAN PHARMACEUTICAL ASSOCIATION from April 24 to 30. Plans for the 1949 Convention are being completed as this issue of THE JOURNAL goes to press. Officers of the ASSOCIATION and of its Sections, and Committee chairmen have arranged a program that will provide six full days of professional addresses, papers and discussions.

A. PH. A. Meetings

Official A. PH. A. meetings will begin Tuesday evening, April 26, when the House of Delegates holds its first session. The A. PH. A. meetings will conclude Friday evening, April 29, with the final session of the House of Delegates, immediately followed by the final General Session.

Prior to, or at non-conflicting periods, during the A. PH. A. sessions, there will be meetings of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, the American Society of Hospital Pharmacists, the American College of Apothecaries, American Institute of the History of Pharmacy, Conference of Pharmaceutical Association Secretaries, and also a number of fraternal and special groups.

President Ernest Little will deliver his annual address at the First General Session of the Convention on Tuesday evening, April 26. It is expected that Governor Fuller Warren of Florida will address either this session of the Convention or the annual banquet on Thursday evening, April 28.

Amendments to the Constitution of the AMERICAN PHARMACEUTICAL ASSOCIATION will be presented at this session. (These proposed amendments, as well as the present Constitution, are reproduced in full on pages 166 and 167.)

By-Law Amendment

The following By-Law amendment proposed in the address of the Chairman of the House of Delegates at the 1948 Convention also will be offered at the First General Session:

"Amend Article I, Chapter 1 of the By-Laws by inserting after line 12, the following: 'No member of the ASSOCIATION shall be elected to membership on the Council more than twice until a period of more than one year has elapsed.'"

Medical Care Programs

Full discussion of the proposed medical care programs will take place at the Second General Session on Thursday morning, April 28. Principal speakers at this session will be Oscar Ewing, Federal Security Administrator, or one of his associates (Mr. Ewing has been ill but is expected to be able to attend the Convention); and Dr. Frank G. Slaughter, noted physician and author who will speak on the medical care program of the American Medical Association. It is also expected that one of the group of Senators sponsoring the Taft program of medical care may take part in the symposium.

By means of this symposium, the members of the A. PH. A. will be fully informed on the status of the various health programs being advocated and it is expected that the ASSOCIATION will instruct its officers and committees on the stand to be taken with regard to these proposals.

Survey Recommendations

Another very important feature of the Second General Session will be the report of progress on the implementation of the Pharmaceutical Survey recommendations by Dr. E. C. Elliott, Director of the Survey. Dean Glenn L. Jenkins, president-elect, will deliver his inaugural address at this session.

The Final General Session, which follows the concluding session of the House of Delegates on Friday evening, April 29, will be devoted principally to approval of resolutions and to installation of ASSOCIATION officers. Meetings of the House of Delegates will be devoted largely to the reports of officers and committees on the basis of which policies of the ASSOCIATION will be formulated. It is expected that the major part of one session will be devoted to discussion of mutual problems of the various segments of pharmacy through their officers.

Among the important committee reports to be acted on are those of the Committee on National Legislation, which will review all pending bills now before the Congress of the United States; the Committee on State Food and Drug Legislations, which has been conducting a survey of the present status of State legislation on this subject; the Committee on Social and Economic Relations, which will summarize current medical care programs and labor relations; and the Committee on Professional Relations, which has been active in developing better relations between the various groups within the medical and health fields.

Association Progress

The reports of the Secretary and the Treasurer are expected to show that the ASSOCIATION has made substantial progress both in increasing its membership and its income although the constantly enlarging services of the ASSOCIATION are absorbing its income and causing greater drains upon its resources.

In addition to the four sessions of the House of Delegates and the three general sessions, those in attendance will have an opportunity to hear about the latest advances in the various specialties of the profession of pharmacy at the meetings of the five Sections of the ASSOCIATION.

Section Meetings

More than 60 papers have been submitted to the Scientific Section and the program of this important group will include a symposium on blood and blood products in which outstanding workers in this field will participate under the leadership of Dr. Edwin Cohn of Harvard University Medical School.

At one of the four sessions of the Scientific Section, the Iodine Educational Bureau, Inc., Research Award lecture will be delivered by Dr. William T. Salter of Yale University Medical School, winner of the $1000 award.

In the Section on Practical Pharmacy, a large number of papers bearing on everyday prescription practice and the many-sided interests of practicing pharmacists will be presented by leaders in this phase of pharmacy.

The Sections on Education and Legislation, Historical Pharmacy, and Pharmaceutical Economics will likewise present programs of special interest while such groups as the American Society of Hospital Pharmacists and the American College of Apothecaries will give consideration to contemporary developments in their specialties. The Conference of Pharmaceutical Association Secretaries will meet in advance

of the Convention beginning their sessions on April 23 and also throughout the Convention week.

Three meetings of the American Institute of History of Pharmacy have been scheduled to be held jointly with the Section on Historical Pharmacy Wednesday, Thursday and Friday afternoons, April 27, 28, and 29.

College and Board Meetings

The American Association of Colleges of Pharmacy will begin its sessions on Sunday, April 24, and has arranged the customary Teachers' Conferences in the various specialties of the pharmacy curriculum for Monday and Tuesday of the Convention Week. The Teachers Conferences will be held at the Roosevelt Hotel where special facilities have been provided. The meetings of the Association will be held at the George Washington Hotel.

On Monday evening, April 25, the American Association of Colleges of Pharmacy will be joined by the National Association of Boards of Pharmacy at a joint dinner which is to be addressed by President J. Hillis Miller of the University of Florida.

The National Association of Boards of Pharmacy meets on Monday and Tuesday, April 25 and 26. A very important part of its program will be a discussion, at a special seminar on Monday afternoon, of the proposed uniform pharmacy practice act. Secretary P. H. Costello will serve as chairman of this meeting and leaders in the field of pharmacy law enforcement and development, including Dr. R. L. Swain, Sylvester H. Dretzka, Frank Moudry, Dr. R. P. Fischelis, and others, will participate.

Throughout Convention Week, as different groups discuss the various recommendations of the Pharmaceutical Survey, Dr. Edward C. Elliott will participate in these discussions and give leadership to proposals for implementation of the Survey recommendations which were officially issued after the 1948 Convention of the A. PH. A. and have, therefore, not been acted upon before by the ASSOCIATION or its affiliated and related groups.

Suggestions to New Members

Members attending their first A. PH. A. Convention are requested to make themselves known to the officers or members of the Convention Reception Committee. This committee will gladly assist members in every way possible.

New members also are urged to enter into the discussions at the General Sessions and the House of Delegates and also take an active part in the Group and Section discussion. While voting in the House of Delegates is confined to voting delegates, all members of the ASSOCIATION are welcome to attend these meetings and voice their views.

Delegates who are attending in that capacity for the first time are urged to attend all Sessions of the House of Delegates and to freely express themselves on all problems considered by this group.

Hotel Reservations

All hotel reservations should be made through the A. PH. A. Housing Committee, Jacksonville Tourist and Convention Bureau, 207 Hogan St., Jacksonville 2, Fla. Under this plan reservations are not ac-

Ribault Monument, near Jacksonville, erected in honor of Jean Ribaut, founder of the first French colony in America

Jacksonville Beach, one of Florida's finest beaches . . . surf bathing in the blue Atlantic

cepted directly by any of the seven hotels in which the members and delegates will be housed.

This system assures room reservations for all and avoids lengthy correspondence with several hotels when space is not available at the first hotel contacted. Every member of the ASSOCIATION has received a hotel reservation bulletin and form. This application blank also was reproduced on page 113 of the February issue of THIS JOURNAL. Members who have not already made reservations for the Jacksonville Convention are urged to do so immediately.

Registration

Admission to meetings and entertainment features will be by registration badge and coupons which will be supplied at the Registration Desk. The registration fee for members of the ASSOCIATION and for members of their families accompanying them is $10 per person. This includes the annual banquet and other entertainment features. Applicants for membership who have submitted their application and the first year's dues may also register at the $10 rate.

Official headquarters for the Convention will be the George Washington Hotel. All General Sessions, Section Meetings, and other group meetings will be held in this hotel except as otherwise announced.

Scientific Section

The Scientific Section will hold four sessions—Wednesday morning and afternoon, Thursday afternoon and Friday morning, April 27, 28 and 29. The program of the Scientific Section, as well as the complete list of the papers available at press time, which will be presented at the Scientific Section Sessions, is contained in the following columns.

Program of the Scientific Section

FIRST SESSION

Wednesday, April 27, 1949

9:30 a. m.

1. Business Meeting
2. Presentation of Papers (2 Sections)

SECOND SESSION

Wednesday, April 27, 1949

1:30 p. m.

1. Report on the Iodine Educational Bureau, Inc., Research Award.
2. Address: Dr. William T. Salter, recipient of the Award.
3. Presentation of Papers (2 Sections).

THIRD SESSION

Thursday, April 28, 1949

2:00 p. m.

Symposium: "Blood and Blood Products."
Leader: Dr. Edwin Cohn.
Other outstanding workers in this field will participate in this Symposium.

FOURTH SESSION

Friday, April 29, 1949

9:00 a. m.

1. Presentation of Papers
2. Final Business Meeting

Scientific Section Papers

(These titles are not in the order in which the papers will be presented.)

1. "Pancreatin with High Enzymatic Activity with Some Observations on the Stability and Activity of Lipase"—Charles W. Bauer and A. John Vazakas.
2. "Salivary Amylase: Its Activity and Stability with the Evidence for the Existence of a Labile Fraction"—Charles W. Bauer and Edward V. Svedres.
3. "Problems Involved in the Manufacture of

(Continued on next page)

(Scientific Section Papers continued from page 161)

Aminophylline Tablets"—Douglas Stewart, Byrl E. Benton and Noel E. Foss.

4. "The Hydrogen Ion Concentration and Osmotic Properties of Lachrymal Fluid"—Harry W. Hind and Frank M. Goyan.

5. "Some Esters of Cumic Acid"—Edwin H. Carkhuff and L. G. Gramling.

6. "The Antispasmodic Action of *Euphorbia pilulifera*"—Rebecca C. Hellerman and Lloyd W. Hazleton.

7. "Assays of Cinchona and Nux Vomica by Microsublimation"—Joe A. Zapotocky and Loyd E. Harris.

8. "A Contribution to the Chemistry and Toxicology of the Root of *Phytolacca Americana* L."—Z. F. Ahmed, C. J. Zufall and G. L. Jenkins.

9. "Screening Tests of Certain New Organic Fluorine Compounds for Ascaricidal Activity"—P. H. Honda, R. H. Foden and L. D. Edwards.

10. "The Determination of Absorption from Lard, Wool Fat and Petrolatum Using Radioactive Tracer Techniques"—Gilman N. Cyr, Donald M. Skauen, John E. Christian and C. O. Lee.

11. "The Determination of Absorption from Water-Holding Bases by Means of Radioactive Sodium Iodide"—Donald M. Skauen, Gilman N. Cyr, John E. Christian and C. O. Lee.

12. "A Method for the Evaluation of Radiographic Opaques"—Charles H. Sprague, Glenn L. Jenkins, H. George DeKay and John E. Christian.

13. "The Synthesis of Certain Derivatives of Thiols"—John W. Boenigk, John E. Christian and Glenn L. Jenkins.

14. "The Preparation of Certain Stable Iodo-Radio-Opaque Compounds"—Stanley G. Mittelstaedt and Glenn L. Jenkins.

15. "Certain Substituted Thiobisacetimide and Corresponding Sulfones"—Paul R. Rasanen and Glenn L. Jenkins.

16. "Esters of Disubstituted Malonic Acid"—Arthur J. McBay, John B. Data, and Glenn L. Jenkins.

17. "A Study of the Surface Lipids of the Skin"—J. E. Pritchard, L. D. Edwards and J. E. Christian.

18. "The Synthesis of Derivatives of Methionic Acid"—Robert W. Elkas, John E. Christian and Glenn L. Jenkins.

19. "A Critical Study of Cellulose Acetate Phthalate as an Enteric Coating"—Joseph L. Kanig and H. M. Carter.

20. "Studies in the Hydrophylic Properties of Ointment Base Constituents, V. The Isomeric Eicosanols"—Alfred Halpern and John G. Adams.

21. "Studies in the Hydrophylic Properties of Ointment Base Constituents, VI. Emulsion Phase Reversal"—Arthur C. Glasser, Gaetano Siconolfi and Alfred Halpern.

22. "The Effect of Fatty Alcohols on the Surface and Interfacial Tension in Oil-Water Systems"—Nicholas C. Squeglia and Alfred Halpern.

23. "A Comparison of the Oral Activity of 3-orthotoloxy-1,2-propanediol (Tolserol) in Solution and in Suspension"—R. K. Thoms and J. C. Burke.

24. "Acetamide Derivatives"—Charles O. Wilson.

25. "Esters of 1,3-Bis (diethylamino)-2-propanol"—Charles O. Wilson.

26. "Observations on the Leaves of Species of Viburnum II"—Heber W. Youngken.

27. "Studies on the Muscle Relaxant Effects Produced by *Potentilla Anserina*"—H. W. Younken, Jr., A. C. Neva and H. Daubin.

28. "Esters of 3-Nitrocumic Acid"—Ross M. Baxter and P. A. Foote.

29. "The Antioxidant Effect of 2,2′,3,3′-Tetrahydroxy-5,5′-dimethyl Biphenyl—Ole Gisvold and Yu-Chung Chang.

30. "Some Extraction Studies on Digitalis"—R. E. King and Ole Gisvold.

31. "A Study of Antacid Buffers, III. The Antacid Properties of Some New Aluminum Glutamates"—J. W. LeMaistre, J. M. Holbert and I. W. Grote.

32. "Some New Soluble Forms of Theophylline"—J. M. Holbert, I. W. Grote and J. W. LeMaistre.

33. "Dichloro Aluminum Aminoacetate, a New Antiperspirant and Deodorant"—I. W. Grote, J. M. Holbert and Peggy Walker Cross.

34. "A Pharmacological Study of N-Methyl-N-Cinnamyl-2-Phenyl-Propylamine"—R. P. Ahlquist, Bertha Hobensack and R. A. Woodbury.

35. "3-Amino-4-hydroxybenzenearsonous Acid, III. Oxophenarsine Hydrochloride, U. S. P. (Mapharsen^{R}). Decomposition Products" C. K. Banks.

36. "3-Amino-4-hydroxybenzenearsonous Acid, IV. Oxophenarsine Hydrochloride, U. S. P. (Mapharsen^{R}). Decomposition Rate of Solid Form and Solutions"—C. K. Banks.

37. "Colorimetric and Fluorometric Studies on the Borntraeger's Reaction for the Anthraquinone Drugs"—Bernard V. Christensen and Ismail A. Abdel-Latif.

38. "A New Microchemical Outside Indicator for the Anthraquinone Derivatives"—Bernard V. Christensen and Ismail A. Abdel-Latif.

39. "New Micro-Technique in Ultra Violet Qualitative and Quantitative Fluorometric Analyses"—Bernard V. Christensen and Ismail A. Abdel-Latif.

40. "A New Spectrophotometric Method of Assay for Alexandria Senna Leaves, Applicable to All the Emodin Drugs"—Bernard V. Christensen and Ismail A. Abel-Latif.

41. "A New Fluorometric Method of Assay for Alexandria Senna Leaves"—Bernard V. Christensen and Ismail A. Abdel-Latif.

42. "The Colorimetric Determination of Histamine in Histamine Phosphate Injection, U. S. P." —W. J. Mader and H. S. Sterne with J. Rosin and H. A. Frediani.

43. "Standard Tolerances for Pharmaceutical Compounding. A Basis for Their Establishment, III. Capsules"—Samuel W. Goldstein.

44. "A Proposed Method for Isolating Plant Constituents"—George D. Curts and Loyd E. Harris.

45. "A Phytochemical Study of *Malva Rotundifolia* L."—George D. Curts and Loyd E. Harris.

46. "Colloidal Magnesium Aluminum Silicate as a Suspending Agent"—C. Lee Huyck.

47. "Studies on Sex Variation to Picrotoxin in the Albino Rat"—Harald G. O. Holck.

48. "Local Irritation Caused by Streptomycin in Animals Compared to Pain Produced in Man"—S. Kuna, W. H. Ott and F. T. Cuchie.

49. "Spectrophotometric Assay Method for Pyranisamine Maleate"—Luise T. Anderson, W. C. Gakenheimer, Charles Rosenblum and E. H. Smith.

50. "Synthetic Analogs of the Adrenal Cortical Hormones, II. Preparation of 4,4'-Bis(acetoxyacetyl)-α,α'-diethylstilbene"—George P. Hager and Raymond M. Burgison.

51. "Cultivation Studies of the Solanaceous Drugs, I. Post Harvest Alkaloid Movement in Belladonna and Datura Species"—Willis R. Brewer and L. David Hiner.

52. "An Adaptation of the Chemical Method of Determination of Folic Acid (Pteroylglutamic Acid) for Use with Pharmaceutical Preparations"—P. A. Ware and George Cronheim.

53. "The Colorimetric Estimation of N-Pyridyl Substituted Anti-Histamine Drugs"—Hurd M. Jones and Edward S. Brady.

54. "The Acute and Chronic Toxicity of 9-Aminoacradinepenicillin"—Donald C. Brodie and Elizabeth Lowenhaupt.

55. "The Stability of Atropine Sulfate in 0.1% Solution as Determined by Conductivity Measurement"—Charles Rosenblum, David T. Woodbury and Thomas J. Macek.

56. "Sabadilla Alkaloids, I. Extraction of Total Alkaloids"—Chester E. Poetsch and Lloyd M. Parks.

57. "Sabadilla Alkaloids, II. Alkaloidal Components of the Petroleum Ether Extract"—Chester E. Poetsch, Takeru Higuchi and Lloyd M. Parks.

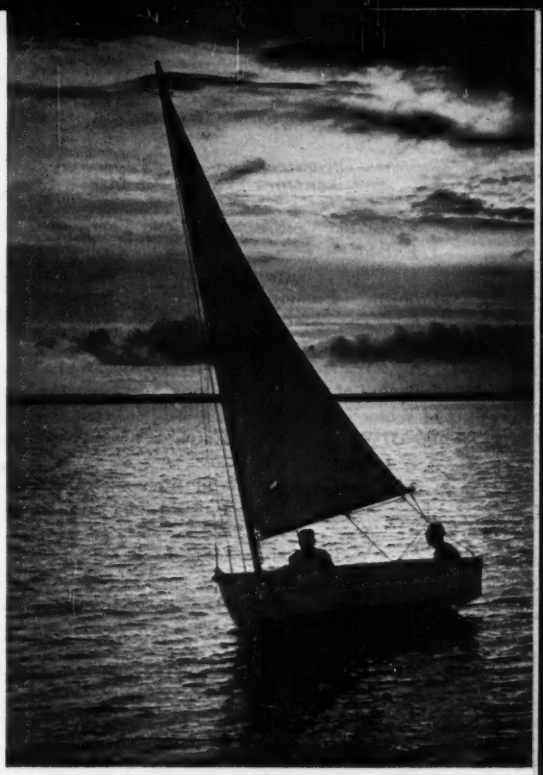
58. "The Identification of Organic Bases by Means of the Optical Properties of the Diliturates, III. Some Pharmaceuticals"—Elmer M. Plein.

59. "A Comparative Study of the Buffering Capacity of Various Commercially Available Gastric Antacids"—E. R. Hammarlund and L. Wait Rising.

60. "The Effect of Crystal Size on the Estrogenic Activity of Theelin"—A. Simond and L. W. Rowe.

61. "The Occurrence of Rutin in *Sambucus Canadensis*"—Burton C. King and Arthur E. Schwarting.

62. "Use of Selective Adsorption in the Analysis of Hydrastis"—Jose Mendez, Ernst R. Kirch and Ralph F. Voight.



Sail boating on beautiful St. Johns River . . . one of Jacksonville's popular sports.

63. "On the Use of a Method Based on Survival Time for Determining the Toxicity of Neoarsphenamine in Rats"—M. G. Allmark and A. Lavallee.

Section on Practical Pharmacy

The program of the Section on Practical Pharmacy includes the chairman's address, reports of other officers, and reports of Committees on Professional Terminology, Prescription Tolerances and By-Laws.

The Section on Practical Pharmacy will meet:

Wednesday afternoon, April 27
Thursday afternoon, April 28
Friday afternoon, April 29

Titles of the papers for the Section on Practical Pharmacy, submitted thus far, follow (these papers are not necessarily listed in the order of presentation):

Practical Pharmacy Papers

1. "Compounding Practices in the U. S. A. and Canada"—S. W. Goldstein.

2. "The Stabilization of Ferrous Iodide Syrup, N. F. VIII"—William J. Husa and Edward Pedrero, Jr.

(Practical Pharmacy Papers continued on page 164)

(Practical Pharmacy Papers continued from page 163)

3. "What Constitutes a Good Pharmacist?"—J. F. Badgett.
4. "The Pharmacist's Role in the Pesticide Problem"—Bernard E. Conley.
5. "The Ammoniated Mercury-Salicylic Acid Incompatibility"—C. Lee Huyck.
6. "Water-in-Oil Emulsifying Agents, V. The Influence of W/O Emulsifying Agents on the Loss of Water from Some Emulsified Ointment Bases of the O/W Type"—E. L. Cataline, M. B. Cook and S. F. Jeffries.
7. "The Stabilization of Resorcinol in Topical Preparations"—Alfred Halpern and Howard A. Getz.
8. "Medicine Show or the Master Salesman"—Theo. McCosh.
9. "The Source of Prescription Compounding: An Evaluation by the Patient"—L. C. Wagner and Heber W. Youngken, Jr.
10. "Solutions of Gelatin in Polyhydric Alcohols"—L. F. Tice and A. W. Moore.
11. "Solute Spaces"—M. V. Nadkarni and R. A. Kuever.
12. "A New Type Mortar and Pestle, Scientific and Practical"—M. L. Cooper.
13. "Practical Pharmacy Observations by a Hospital Pharmacist"—Mary K. Keenan.
14. "Glycerin Substitution in Phenobarbital Elixir, U. S. P.—S. J. Dean and Donald C. Brodie.
15. "The Assay of Lead Monoxide in Lead Subacetate Solution, N. F."—Donald C. Brodie, Frank M. Goyan and Jack Nash.
16. "Bentonite as a Major Component of Ointment Bases"—Roy C. Darlington and Earl P. Guth.
17. "Stabilizing of the Color of Peppermint Spirit"—Anthony S. Ridolfo and Earl P. Guth.
18. "The Preparation and Study of Two Anhydrous Emulsifiable Solid Mixtures for the Preparation of Hydrophilic Ointment Bases"—V. N. Bhatia and L. C. Zopf.
19. "An Investigation of the Stability of Gifford's Buffer Solutions under Various Conditions of Storage"—Stephen Wilson and Henry C. West.
20. "The Use of Flavoring Agents to Mask the Taste of the Vitamin B Complex"—Ralph W. Clark and Lyle B. Lathrop.
21. "Effect of Outside Forces on Shaping the Future of Pharmacy"—J. W. Snowden.
22. "Formulations and Practical Applications of 'Carbowax' Vehicles"—D. M. Meyers, M. V. Nadkarni and L. C. Zopf.
23. "The Boundaries of Pharmacy"—Blanche Sommers.
24. "How Much Time Should Be Put in on Incompatibilities of the Old Type Drug Compared with the Newer Type"—D. B. R. Johnson.
25. "Visual Aids for the Practicing Pharmacist"—Hazel E. Landeen.

Section on Pharmaceutical Economics

Meetings of the Section on Pharmaceutical Economics will be held on Thursday afternoon, April 28 and Friday afternoon, April 29.

The following papers have been scheduled for the Section on Pharmaceutical Economics so far:

1. "Prescription Pricing"—W. Paul Briggs.
2. "Economics of a Professional Pharmacy"—Joseph S. Lucas.
3. "Proprietary Drug Survey in Louisiana"—Edward J. Ireland.
4. "An Aspect of Pharmaceutical Economics"—Ralph Bienfang.

Section on Education and Legislation

The Section on Education and Legislation will meet Thursday afternoon, April 28 and Friday afternoon, April 29.

The following papers are scheduled for the Section on Education and Legislation:

1. "It Is Time for Pharmacy to Start Specializing"—Charles H. Becker.
2. "The Four-Year Professional Curriculum"—H. Evert Kendig.
3. "A Plan for High School Student Counselors Guidance"—Roland T. Lakey.
4. "Introductory Physiology in the Pharmacy Curriculum"—Elbert Voss.

Joint Meeting—Section on Historical Pharmacy and Institute

The Section on Historical Pharmacy will meet jointly with the American Institute on the History of Pharmacy on April 27, 28 and 29. The following papers have been scheduled for this program:

1. "New Light on the Origin of Show Globes"—George Urdang.
2. "Three Deans, a Student and a Teacher"—Clarence M. Brown.
3. "History of the Florida State Pharmacy Law"—R. Q. Richards.
4. "Gideon Lincecum, Pioneer Texas Physician and Naturalist (1848–1876)"—C. C. Albers.
5. "Samuel Strong of Cleveland, Pioneer Pharmacist"—William W. Hosler.
6. "Practical Experience, an Historical Review"—Robert L. Swain.
7. "Some Memorials on Crawford W. Long, the First Performer of an Ether Anaesthesia"—Kenneth Redman.
8. "Selected Pages from the History of The Ger-

man Apothecaries Society of New York"—Curt P. Wimmer.

9. "Early Attempts to Establish Health Insurance in the United States; with Specific Reference to Pharmaceutical Service"—Bernard Zerbe.

American Society of Hospital Pharmacists

The American Society of Hospital Pharmacists has scheduled the following papers for its sessions:

1. "Thirty Months of the Pharmaceutical Survey in Thirty Minutes"—W. Paul Briggs.
2. "Survey of Internship Programs"—Herbert Flack.
3. "A Study of Ophthalmic Ointments"—Milton Skolaut.
4. "Research Bacteriology and Its Relation to Hospital Pharmacy"—George A. Valley.
5. "Drug Therapy of Today"—Austin Smith.
6. "Personnel Policies and the Hospital Pharmacist"—Joseph O. Barry.

American College of Apothecaries

The program of the American College of Apothecaries, April 24 and 25, includes the following:

1. "Prescription Tolerances"—S. W. Goldstein.
2. "Professional Advertising"—L. A. Weidle, Jr.
3. Panel Discussion: "Policy Committee Symposium"—A. R. Granito, Chairman. Panel Members: Louis J. Fischl, L. Frank Westlake, C. J. Masterson and C. V. Selby.
4. Panel Discussion: "Prescription Problem Symposium"—F. D. Lascoff, Chairman. Panel Members: J. K. Attwood. L. D. Bracken, L. A. Weidle and James S. Hill.
5. Presentation of Lascoff Award for 1948 and announcement of Lascoff Award for 1949.
6. "Surgical Supplies and Equipment"—James S. Hill.
7. "A. C. A. Membership"—Frank East.

Conference of Pharmaceutical Association Secretaries

The Conference of Pharmaceutical Association Secretaries has arranged the following panel discussions:

1. "Secretarial Administration"—E. M. Josey, Moderator.
2. "Association Membership"—William Dixon, Moderator.
3. "Association Promotion"—Robert Dillard, Moderator.
4. "Pharmaceutical Legislation"—Jim Lynch, Moderator.
5. "Fair Trade Problems"—Clara Miller, Moderator.
6. "VA Prescription Program"—Jack Debus, Moderator.
7. "State Conventions"—H. W. Heine, Moderator.

Former home of Harriet Beecher Stowe, author of "Uncle Tom's Cabin," located on the St. Johns River near Jacksonville. The giant spreading oak is typical of this region.

Amendments to A. Ph. A. Constitution to be Voted on at Annual Meeting .... *week of April 24*

EVERY proposal to alter or amend the Constitution of the AMERICAN PHARMACEUTICAL ASSOCIATION must be printed in THE JOURNAL at least thirty days prior to the annual meeting. It must be read at the first general session of the annual meeting and may be balloted upon at a subsequent general session. A two-thirds affirmative vote is required for adoption.

The Committee of Six, which was appointed two years ago for the purpose of studying the present form of organization of the AMERICAN PHARMACEUTICAL ASSOCIATION has had a number of meetings and has now completed its work on the revision of the Constitution. The Committee referred its proposals to the Committee on Constitution and By-Laws and the latter Committee is now presenting the proposed revision of the Constitution for action at the Jacksonville meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION the week of April 24.

The Committee of Six includes George D. Beal and B. V. Christensen, representing the Council of the A. PH. A.; H. C. Muldoon and H. V. Darnell, representing the House of Delegates; and George A. Moulton and George L. Webster representing the general membership. The Committee on Constitution and By-Laws consists of B. V. Christensen, Chairman; George D. Beal and George L. Webster.

For the convenience of members, the present wording of the Constitution and the proposed revision to the Constitution are reproduced below. Members will thus be able to make comparisons and determine the action that they desire to take at the Convention.

CONSTITUTION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

Present Form and Content

Article I. Name and Objects. This Association shall be called the "AMERICAN PHARMACEUTICAL ASSOCIATION." Its aim shall be to unite the educated and reputable Pharmacists and Druggists of America in the following objects:

1. To improve and regulate the drug market by preventing the importation of inferior, adulterated or deteriorated drugs and by detecting and exposing home adulterations.

2. To encourage such proper relations among Pharmacists, Druggists, Physicians and the people at large, as may promote the public welfare, and tend to mutual strength and advantage.

3. To improve the science and art of Pharmacy by diffusing scientific knowledge among Pharmacists and Druggists, fostering pharmaceutical literature, developing talent, stimulating discovery and invention, encouraging home production and manufacture in the several departments of the drug business.

4. To regulate the system of apprenticeship and employment, so as to prevent, as far as practicable, the evils flowing from deficient training in the responsible duties of preparing, dispensing and selling medicines.

5. To supress empiricism, and to restrict the dispensing and sale of medicines to regularly educated Pharmacists and Druggists.

6. To uphold standards of authority in the Education, Theory and Practice of Pharmacy.

7. To create and maintain a standard of professional honesty equal to the amount of our professional knowledge with a view to the highest good and greatest protection to the public.

Article II. Membership. This Association shall consist of active, associate, life and honorary members, and shall hold its meetings annually.

Article III. Officers. The officers of the Association shall be a President, two Vice-Presidents, a Secretary, a Treasurer, also an Honorary President, all of whom shall be elected annually. They shall hold office until the installation of their successors.

Article IV. Investment of Moneys and Funds. All moneys received from life membership, together with such funds as may be bequeathed, or otherwise donated, to the ASSOCIATION, may be invested by the Treasurer in United States Government, State, Municipal, County or other securities acceptable as security for postal savings deposits,

the interest of which for any current year only may be used by the ASSOCIATION for its expenses.

Article V. Amendments. Every proposition to alter or amend this Constitution shall be printed in THE JOURNAL, at least thirty days prior to the annual meeting, shall be read at the first general session of the annual meeting, and shall be balloted upon at a subsequent general session, when, upon receiving the affirmative votes of two-thirds of the members present, it shall become a part of the Constitution. Any proposition to amend the Constitution for the purpose of permitting the expenditure of the permanent invested funds of the ASSOCIATION shall require a majority of seven-eighths for its passage.

Proposed Form and Content to be Considered at Annual Meeting

Article I. Name and Seal. This Association shall be called the "AMERICAN PHARMACEUTICAL ASSOCIATION." The ASSOCIATION shall have an official seal.

Article II. Objects. The aims of this Association shall be to unite the pharmacists of America for the following purposes:

1. To improve and promote the public health by aiding in the establishment of satisfactory standards for drugs, and to aid in the detection and prevention of adulteration and misbranding of drugs and medicines, and to take such steps as an Association and in cooperation with other organizations as will assure the production and distribution of drugs and medicines of the highest quality.

2. To foster and encourage interprofessional relations to the end that pharmacists, physicians, and members of other allied professions may contribute to the promotion of the public health and welfare in fullest measure.

3. To improve the art and science of pharmacy by fostering the publication of scientific information relating to the practice of pharmacy, and by the preparation and distribution of publications which will record the progress of pharmacy and aid in the development and stimulation of discovery and invention and in interesting competent personnel in the practice of pharmacy as a career.

4. To provide a system of education and training in the art of pharmacy, calculated to produce competent personnel for all phases of the practice of pharmacy and the training of pharmacists.

5. To support a system of licensure and registration of pharmacists which will assure the availability of competent personnel to discharge the accepted functions of the practice of pharmacy and assure the availability of pharmacists and pharmaceutical service which will provide at all times for the distribution of drugs and medicines under the supervision of qualified pharmacists.

6. To develop, maintain, and enforce a Code of Ethics which will assure to the public the highest type of pharmaceutical service, safeguard the professional relations between medical practitioners, pharmacists, and patients, and develop intra-professional relations which will tend to uplift the profession scientifically, spiritually and morally.

Article III. Membership. This Association shall consist of active, junior, affiliate, and honorary members, and shall hold its meetings annually. Active members shall be designated as Fellows of the AMERICAN PHARMACEUTICAL ASSOCIATION.

Article IV. Headquarters—American Institute of Pharmacy. Implementation of the aims and objects of the AMERICAN PHARMACEUTICAL ASSOCIATION shall be accomplished through a headquarters organization established and housed in the American Institute of Pharmacy.

Article V. Officers. The officers of the ASSOCIATION shall be a president, two vice-presidents and an honorary president, who shall be elected for a term of one year, and a secretary, a treasurer and nine councilors, who shall be elected for a term of three years. The officers shall be elected as provided in the By-Laws and shall hold office until the installation of their successors.

Article VI. Organization. The functions of the ASSOCIATION are performed by the members through the agency of the General Sessions, the House of Delegates, the Council, the Sections, and the Branches, as prescribed by the By-Laws.

Article VII. Investment of Moneys and Funds. Funds of the Association, available for investment, may, with the approval of the Council, be invested by the Treasurer, in United States Government, State, Municipal, County, or other securities acceptable as security for postal savings deposits, and in such securities only.

Article VIII. Amendments. Every proposition to alter or amend this Constitution shall be distributed to the members at least thirty days prior to the annual meeting, either by direct mail or in the JOURNAL. Every amendment shall be read at the first General Session of the annual meeting, and shall be balloted upon at a subsequent General Session when, upon receiving the affirmative votes of two-thirds of the members present, it shall become a part of the Constitution. Any proposition to amend the Constitution for the purpose of permitting the expenditure of the permanent invested funds of the ASSOCIATION shall require a majority of seven-eighths of the members present for its passage.

AUREOMYCIN

• • • a new antibiotic for the treatment of bacterial, viral, and rickettsial diseases • • •

ALTHOUGH about one hundred antibiotics are known from fungi and bacteria, the number available for the actual treatment of disease can be counted on the fingers of one hand. The advent of aureomycin, a new antibiotic from *Streptomyces aureofaciens*, is a distinct milestone in antibiotic history because, while apparently not more potent than penicillin and streptomycin when tested against bacteria susceptible to these drugs, it is effective in treating viral and rickettsial diseases, heretofore not amenable to antibiotic therapy.

Story of Aureomycin

The story of aureomycin, as far as is presently known, is now being told in order to provide the fullest possible background for the practicing pharmacist. The facts are here marshalled in the order believed to be most useful to the pharmacist. This viewpoint and the necessity for brevity have made complete documentation impossible. Nevertheless the attached references, especially the New York Academy of Sciences Symposium,[1] will help fill in the gaps for those who will find need for still greater detail.

Aureomycin, as obtained from the mold *Streptomyces aureofaciens*, is a golden yellow crystalline substance of sufficient purity to warrant dosage in terms of weight rather than units. It is chemically amphoteric and both its hydrochloride and sodium salts are water soluble. The former has been reported to have a *p*H of 2.5 and 4.5 and its solutions are reasonably stable, while the latter salt has a *p*H of about 8.5 and is unstable. In a carbonate buffer at *p*H 8.5, the sodium salt loses 12% of its activity within thirty minutes and 40% within two hours. Powdered aureomycin appears to be stable and concentrated solutions are more stable than dilute ones. Aureomycin is sufficiently soluble in 5% dextrose solution and in physiological saline to be useful in such solvents.

Bacteriologically, aureomycin is more effective against gram-positive organisms than the gram-negative types, the aerobic spore-bearing organisms being most sensitive to the drug. The drug appears to be generally bacteriostatic rather than bacteriocidal. Serum and blood exert an antagonistic action to the drug, although bacteriostasis can still prevail if sufficient drug is present.

The instability of the drug at neutral and alkaline *p*H's and in the presence of the constituents of culture media makes bioassay somewhat difficult, but both serial dilution methods and cup-plate techniques have been developed.

There is no evidence of drug fastness or resistance in the bacteria which have been studied *in vitro*. Strains of organisms resistant to penicillin and streptomycin and, in fact, organisms which have become streptomycin-dependent respond readily to aureomycin.

Pharmacology

No antibiotic can be of great value, regardless of potency, unless it is relatively non-toxic and possesses a minimum of side reactions. Aureomycin, like its predecessors, has been subjected to comprehensive pharmacological tests.

Acute Toxicity.—Orally the toxicity of aureomycin is of a low order. Mice tolerated 1500 mg./Kg. and rats 3000 mg./Kg. and at 2500 mg./Kg. the mouse mortality was about 5 per cent. The LD_{50}'s for mice and for rats were 134 mg./Kg. and 118 mg./Kg. intravenously.

Because of the low toxicity, exact LD_{50}'s have not been determined for larger animals but it has been shown that cats and dogs tolerate 50 mg./Kg. with no symptoms other than occasional vomiting.

Subcutaneously and intramuscularly the solutions at *p*H 2.5, 7.0 or 8.5 are irritating even when injected in a 1% procaine solution.

Chronic Toxicity.—Rats and mice given orally up to 100 mg./Kg. of aureomycin daily exhibited no evidence of a toxic reaction up to twelve weeks. Growth curves were identical with controls and autopsy showed no damage traceable to the drug. Neither dogs given 100 mg./Kg. of aureomycin orally nor seven-day-old chicks given feed containing 0.25% aureomycin hydrochloride showed evidence of chronic toxicity.

Pharmacological Effects.—Administration of aureomycin by vein to dogs showed no effect on the blood pressure which could not be duplicated by the injection of a similar volume of hydrochloric acid of comparable normality. At *p*H 8.5 no lowering of the blood pressure occurred, except at rapid rates of administration, and even then the effect was very small. Small doses of acetylcholine, epinephrine and histamine were administered before and after aureomycin. No significant change in the action of these drugs after the antibiotic indicates that aureomycin has no effect on the autonomic nervous system nor the action of histamine.

Aureomycin Tests on Animals

Electrocardiogram studies on both anesthetized and non-anesthetized dogs showed no evidence of cardiac irregularity after aureomycin. No effects upon the respiration of dogs, cats or rabbits could be elicited that could not be attributed to the acidity or alkalinity.

In rats aureomycin exhibited mild diuretic properties (stronger than urea, but milder than caffein or theobromine). After administration of aureomycin to rats there was no effect on hemoglobin or blood sugar. The isolated gut of guinea pigs or rabbits showed no response to the drug.

The antibiotic is irritating when injected intraperitoneally, intramuscularly, subcutaneously, or intracutaneously regardless of the *p*H. A solution of 0.5% aureomycin in physiological saline is mildly irritating when dropped into the eye, but twenty-four hours later all signs of irritation have disappeared. The Johns Hopkins group report no irritation in the rabbit's eye from a 1% aureomycin borate solution.

Study of Aureomycin Elimination

An important phase of the study of a new antibiotic rests upon the determination of essential elimination and its relation to experimental infections. In the case of aureomycin a number of such studies have been made, notably in the laboratories of Johns Hopkins School of Medicine and the Lederle Laboratories. It was shown that aureomycin is capable of passing the blood-brain barrier in dogs although no quantitative relationships between blood levels and cerebrospinal fluid levels were made. Accurate determination of blood levels is made difficult by the inhibiting effect of the blood constituents coupled with the destructive action of culture media.

After oral administration of the drug as much as 13% can be recovered in the urine during the first fifty-five hours. After the administration of 0.5–0.75 Gm. of aureomycin daily to humans, the maximum concentration in the urine was 256 μg./cc. The excretion in the urine persists for three days or longer after the administration of the drug.

Mice infected by the intraperitoneal injection of *Pneumococcus* type I or *Streptococcus hemolyticus beta* showed complete clearing of the blood stream infection within eighteen hours after the administration of 3 injections of aureomycin or penicillin 5 mg./Kg. each. Penicillin G protected a higher proportion of the mice from death at the end of a seven-day period, however. Other comparative tests indicated that while aureomycin is an active antibiotic against experimentally induced bacteremia, it is generally not quite as effective as penicillin, streptomycin or polymixin.

Aureomycin administered to mice orally showed no protection against *Pneumococcus* type I or *K. pneumoniae* although there was protection against *Streptococcus hemo-*

AUREOMYCIN (*continued on page 180*)

INCOMPATIBILITIES IN TODAY'S PRESCRIPTIONS II

By WILLIAM R. FREDERICK* and C. LEE HUYCK*

AMONG the recent incompatibilities submitted by practicing pharmacists to our school for study, those reported in this paper present, we believe, some unusual problems.

No. I

The following prescription presented an interesting incompatibility:

℞

Codeine sulfate	gr. 1
Atropine sulfate	gr. 1/150
Sodium phenobarbital	gr. 6 1/2
Sodium citrate	gr. 45
Linctus compound	oz. 2
Syrup of raspberry, *q. s.*	oz. 3

Misc. et Sig.: Teaspoonful every four hours and at bedtime as needed for cough.

Codeine sulfate, atropine sulfate, sodium phenobarbital and sodium citrate were triturated in a mortar with a small amount of water. Linctus compound was added and the whole was made up to volume with syrup of raspberry.

Upon completion, a white precipitate was noticed which rendered the prescription unsightly and of questionable therapeutic action.

The difficulty here is caused by the combined action of the phosphoric acid of the linctus compound, hydrochloric acid in the fluidextract of ipecac (which is an ingredient of linctus compound), and the citric acid in syrup of raspberry; liberating phenobarbital.

The situation was remedied and a clear and highly satisfactory mixture was obtained by compounding it in the following manner:

Codeine sulfate, atropine sulfate and sodium citrate were triturated with sufficient distilled water to make a saturated solution and the linctus compound was added along with sufficient syrup of raspberry to bring the mixture nearly up to volume. The sodium phenobarbital was dissolved separately in a sufficient amount of water to make a saturated solution and it was added to the mixture with brisk agitation. No precipitate was observed.

Phenobarbital was not precipitated because the linctus compound was neutralized with sodium citrate before the sodium phenobarbital was added. Also, the small amounts of water used in the prescription lessened the amount of syrup of raspberry used which in turn lessened the acidity of the mixture.

No. II

The following prescription presents a noteworthy incompatibility:

℞

Morphine sulfate	gr. 2
Chloral hydrate	dr. 1
Sodium bromide	dr. 1
Aromatic elixir, *q. s.*	oz. 4

Misc. et Sig.: Teaspoonful every four hours and at bedtime.

This prescription was compounded as follows:

Morphine sulfate, chloral hydrate and sodium bromide were dissolved in sufficient

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Presented at the Section on Practical Pharmacy, AMERICAN PHARMACEUTICAL ASSOCIATION, San Francisco meeting, 1948.

distilled water to make a saturated solution and the whole was brought up to volume with aromatic elixir when a milky appearing liquid resulted.

The milkiness was due to chloral alcoholate.[1]

This incompatibility can be overcome as follows:

Dissolve the chloral hydrate and the sodium bromide in sufficient distilled water to make a saturated solution and add nearly enough aromatic elixir to make the desired amount. Dissolve the morphine sulfate in sufficient distilled water to make a saturated solution. Add it to the mixture and agitate briskly. The result is a stable, crystal-clear liquid. The small amount of distilled water used to dissolve the morphine sulfate reduced the concentration of alcohol in the mixture just enough to prevent the formation of chloral alcoholate.

No. III

The original prescription which follows was compounded by an unknown method and was a reddish, clear liquid:

℞

Phenobarbital	0.8
Strontium bromide	20.
Imitation syrup of cherry (Schiefelin)	24.
Peppermint water, *q. s.*	60.

Misc. et Sig.: One fluid dram in one-half glass of water at bedtime.

Upon refilling some interesting mixtures appeared. However, the following method was found to be correct:

(*a*) Dissolve strontium bromide in sufficient peppermint water to make a saturated solution, and add syrup of cherry and add 15 cc. of U. S. P. alcohol.

(*b*) Dissolve phenobarbital in 15 cc. of U. S. P. alcohol.

(*c*) Combine *a* and *b*, agitate briskly and bring up to volume with peppermint water.

The result was a crystal-clear, reddish amber fluid, as desired.

The distinct disadvantage here is the high alcoholic content. However, the method of administration eliminates the burning sensation of the alcohol, which is not present in sufficient quantity to have a therapeutic effect.

No. IV

Although the following prescription involves no difficulty, it still presents a fact that is so often overlooked by both physician and pharmacist namely, that alum is *not* soluble in U. S. P. alcohol.

℞

Saturated Solution of Alum in Alcohol	oz. 4

Misc. et Sig.: Apply to face nightly.

The prescription was compounded as follows:

A quantity of alum was placed in a glass mortar and four fluid ounces of U. S. P. alcohol was added gradually with constant trituration. The mixture was filtered through a covered filter.

This is a saturated solution of alum in U. S. P. alcohol. A small amount of alum is present because U. S. P. alcohol contains 5% water.

The physician probably intended to prescribe a saturated solution of alum in rubbing alcohol containing 70% absolute ethyl alcohol.

No. V

The following prescription is quite noteworthy because it explodes if not allowed to stand before bottling:

℞

Infron capsules (100,000 U. Vitamin D)	caps #2
Thiamine hydrochloride	0.3
Niacin	0.3
Riboflavin	0.3
Ascorbic acid	2.
Citric acid	1.
Copper sulfate	0.065
Ferrous sulfate	16.
Syrup of rootbeer, *q. s. ad*	500.

Misc. et Sig.: Teaspoonful three times a day before meals.

All ingredients were triturated in a mortar and dissolved in the least amount of water before bringing up to volume with syrup of rootbeer.

Several minutes later the bottle burst. The cause of the explosion was thought to be due to the ferric sulfate in the ferrous sulfate reacting with the citric acid to produce carbon dioxide.[2,3] The reaction is probably catalyzed by copper sulfate. Ferrous sul-

fate, upon aging and contact with air, partially decomposes to ferric sulfate which reacts with the citric acid to form ferrous sulfate with liberation of carbon dioxide gas.

U. S. P. XII directs that ferrous sulfate having a yellowish green discoloration should not be used. However, the pure form of ferrous sulfate is difficult to obtain and maintain for any length of time.

Therefore, it is recommended in this case that the solution be allowed to stand in an open container until the reaction is complete. Thirty minutes has been found to be a sufficient length of time.

As an added precaution the preparation should be labeled "Keep in refrigerator," in order to maintain the temperature below that which would cause reaction to take place.

No. VI

The following prescription is interesting:

℞

Calcium carbonate.....	gr. 300
Sodium bicarbonate.....	gr. 600
Phenolphthalein.....	gr. 5
Powdered extract of belladonna.....	gr. 3½
Oil of peppermint, *q. s.* to flavor.....	

Misc. Color pink et Sig.: One teaspoonful in water three times a day after meals.

This prescription ordinarily would be a pale green color due to the chlorophyll present in powdered extract of belladonna. However, the prescribing physician distinctly specified the finished product to be pink in color.

This can be accomplished by triturating the phenolphthalein with the sodium bicarbonate and calcium carbonate until a definite pink color is obtained. Place the extract of belladonna in a mortar and gradually add the sodium bicarbonate-phenolphthalein-calcium carbonate mixture with constant trituration.

By obtaining a primary pink color due to the alkaline reaction of sodium bicarbonate and the phenolphthalein, the green color of the belladonna is overshadowed.

The color of this prescription is not stable for any great length of time. It should be dispensed only in weekly supplies and obviously stock quantities cannot be kept on hand.

REFERENCES

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2. Taylor, F. O., *Ind. Eng. Chem.*, 11, 239 (1919).
3. Peltz, S. I., and Lynn, E. V., THIS JOURNAL 27, 774 (1938).

TOWNES RANDOLPH LEIGH

Dr. Townes Randolph Leigh, Dean Emeritus of the College of Arts and Sciences and Head of the Chemistry Department of the University of Florida, passed away in Gainesville, Fla., on February 15, after a brief illness.

Dr. Leigh's fine personality, abilities, and leadership captivated the hearts of Florida pharmacists, his colleagues, and friends, and led to the establishment of the College of Pharmacy at the University of Florida in 1923 in which he served as Dean until 1933. In 1934 he was appointed Acting Vice-President of the University of Florida and was Vice-President from 1946 to 1948 after which he was given the title of Honorary Vice-President. Through his persistent efforts the Chemistry-Pharmacy Building was erected in 1927 and added to in 1948.

Dr. Leigh was a member of numerous scientific, professional, civic, fraternal, and church organizations and served with distinction in many of them. He was Chairman of the Committee on Curriculum and Teaching Methods of the American Association of Colleges of Pharmacy, 1928–31, and President in 1931–1932; member of the American Council on Pharmaceutical Education 1932–1946; member Revision Committee U. S. P. XI. He had been a member of the American Pharmaceutical Association since 1923. For many years he was Associate Editor of the *Southeastern Drug Journal*.

MARY A. PEACOCK

Members of the ASSOCIATION will recall that Josiah C. and Bertha L. De G. Peacock, who were life members of the A. PH. A., remembered the AMERICAN PHARMACEUTICAL ASSOCIATION in their will. They arranged for a bequest of $1000 to the ASSOCIATION to be available on the demise of Mary A. Peacock, sister of Josiah.

Word has come to us that Miss Peacock died in Philadelphia on January 9 and named the AMERICAN PHARMACEUTICAL ASSOCIATION as her residuary legatee. The amount bequeathed will not be known until the necessary legal formalities have been completed in settling the estate.

Josiah Peacock was honorary president of the AMERICAN PHARMACEUTICAL ASSOCIATION in 1941–1942, and both he and Mrs. Peacock attended many of the conventions of the ASSOCIATION. They had an abiding interest in the promotion of professional pharmacy which was shared by Miss Mary Peacock

SKIN CANCER

No. 9 in a Series

• • • • • • •

ABOUT 95% of early skin cancer cases are curable. Because it is a surface type of cancer, its early discovery and diagnosis usually do not present a difficult problem.

Frequently persons fail to seek prompt medical attention for skin cancer because they regard the condition as relatively harmless in view of its slow development. Any skin sore or lesion that does not heal requires medical attention. Persons who ask for ointments, salves, lotions, and other medications for an undiagnosed skin condition should be warned against the dangers of self treatment.

Common Forms of Skin Cancer

The commonest form of skin cancer appears as a small, firm nodule or elevation, generally gray in color. If untreated, it increases in size. The epidermis becomes thinner and forms an ulcer, usually in the center of the lesion.

Another form of skin cancer begins as a horny wart; although not painful, it has a tendency to itch and bleed. It is often mistaken for a harmless wart, but its hornified surface is generally a distinguishing characteristic.

The most dangerous skin cancer, malignant melanoma, is fortunately less common. This type of "mole" is characterized by its dark brown or blue-black color.

Suggestions on Skin Hygiene

To a considerable extent, skin cancer is preventable. The following suggestions on skin hygiene may be helpful:

1. Protection of the skin from known cancer-producing substances, such as coal tar, pitch, paraffin, and certain lubricating oils and compounds. Garage and chemical workers, for example, should wear protective gloves and avoid prolonged use of sooty, tarred or greasy clothing. In addition, frequent use of soap and water is recommended for all workers exposed to irritating substances.

2. Avoidance of over-exposure to the sun in areas of excessive sunlight. In such areas, outdoor workers should wear protective clothing and use skin-protecting ointments.

3. Careful shaving by men with scaly facial patches or moles, to prevent injury or irritation.

4. Suspicion of all dark brown or blue-black moles, as well as other skin blemishes that are subject to irritation from clothing or other sources. Any mole that increases in size or changes in color should be examined by a physician.

Pharmacists Can Help

Skin cancer, under the management of a qualified physician, is relatively easy to diagnose and treat. Through greater public awareness of its early signs and symptoms, skin cancer could be virtually eliminated as a cause of death. As a source of health information in his community, the *pharmacist* can make an important contribution toward that goal!

INFORMATION SERVICE

Members of the American Pharmaceutical Association are invited to submit their professional problems to the Journal, 2215 Constitution Ave., N. W., Washington 7, D. C., giving all pertinent details. Advisory service is provided by the A. Ph. A. library and technical staff and the Journal panel of technical consultants.

PHYSOSTIGMINE SOLVENT

Please give me a formula for an isotonic, buffered ophthalmic solution of physostigmine hydrochloride.—S. G., New Jersey.

Physostigmine is sufficiently unstable in aqueous solutions approaching neutrality that buffering to physiological *p*H's is not practicable. It can be rendered substantially isotonic, however. Also the hydrochloride salt of this alkaloid is not generally available, the salicylate being used much more frequently.

According to a paper by Hind and Goyan, appearing on page 33 of the February, 1947, issue of the Scientific Edition of THIS JOURNAL, the most feasible solvent for physostigmine is prepared as follows:

Boric acid, c. p.....	0.356 molar
Sodium metabisulfite....	0.1%
Alkyl dimethyl benzyl ammonium chloride...	1:50,000
Distilled water, *q. s.*	

TREATMENT OF LEPROSY

We would like to know the latest drugs being used in the treatment of leprosy. We should also like to have the source of the drugs and any literature available.—H. K., Virginia.

Although leprosy is a rather rare disease, a considerable number of papers relating to its treatment have been published during recent years. Most of these papers have originated from the National Leprosarium in Carville, La., the director of which is Dr. G. H. Faget. He will be pleased to send you reprints of articles which will give you all of the information you require.

In an article by Dr. Faget, published in the February, 1947, issue of the *Journal of Nursing*, he states that "the doctors at Carville recently announced 'Promin is the best experimental treatment tested thus far.'" Promin is manufactured and distributed by Parke, Davis and Co., Detroit, Mich.

NEEDS OINTMENT TUBES

We are unable to obtain empty collapsible tin ointment tubes locally. Can you assist us?—O. G., California.

As requested, a Washington, D. C., drug firm is shipping the tubes you desire. It is quite probable you could order them directly from the National Collapsible Tube Co., Providence, R. I.

CELLOPHANE SEALER

Can you please tell me where I can obtain a machine for the cellophane-sealing of manufactured tablets?—A. Z., Central America.

We do not find a machine of this type listed in any of the catalogues of manufacturers of pharmaceutical equipment. However, any one of the following three manufacturers probably can supply equipment of the type in which you are interested: Consolidated Products Co., 13-26 Park Row, New York, N. Y.; Machinery and Equipment Corp., 533 W. Broadway, New York, N. Y.; The Arthur Colton Co., Detroit, Mich.

CHLOROPHYLL PRODUCTS

Will you please send me a formula for a gargle and an ointment containing water-soluble chlorophyll?—I. L., Canada.

Chlorophyll and chlorophyll preparations are manufactured and distributed by the Rystan Co., 50 Church St., New York 7, N. Y. Address an inquiry to the Rystan Co. and they will supply you with authentic information on the subject.

TOMATIN

What is tomatin and where may we obtain it?—O. G., California.

Tomatin is an antibiotic obtained from tomato plant stems. It was developed in the Bureau of Plant Industry of the U. S. Department of Agriculture by Dr. George Irving. It is still in the experimental stage and is not available for general use. Acute and chronic toxicity studies and pharmacologic and bacteriologic investigations are being conducted at the Medical School of Duke University and in the Western Regional Laboratories of the Department of Agriculture.

METHYL CELLULOSE AND SODIUM ALGINATE

I am a graduate student doing research work on methyl cellulose and sodium alginate. Are bulletins of the National Formulary Committee concerning the two gums available?—J. M., California.

Brief references are made to sodium alginate in the May-June 1946 issue of the *Bulletin of the National Formulary Committee*, in an article entitled "Some Pharmaceutical Necessities of the New National Formulary." A tentative monograph on methylcellulose was published in the January-February, 1947, issue of the *Bulletin*. Single copies of the *Bulletin* are available at $1.00 per copy.

"STAROGEN" CREAM

Will you please let me know what starogen cream is and who makes it.—I. L., Canada.

We have been unable to identify the product called starogen cream. Perhaps you refer to Staogen Ointment, supplied by the Staogen Corp., 41 E. 21st St., New York 10.

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LOCAL BRANCHES

"RECENT Developments in Radiology" was the topic for discussion at the February meeting of the **Northern California Branch.** The guest speaker, Dr. C. E. Drusenberg, department of radiology, San Francisco Hospital, related the important role of roentgenology in present-day medical practice. He also discussed the use by the roentgenologist of pharmaceuticals such as penicillin, vitamins, and antihistaminics.

The January meeting of the Philadelphia Branch was held at the Temple University School of Pharmacy. Following an informal dinner and short business program, Dr. Harold W. Brown, professor of parasitology, School of Public Health, Columbia University, spoke in reference to "Amebiasis." A joint meeting with the Philadelphia Association of Retail Druggists also was planned for February.

The Pittsburgh Branch has joined the list of branches and colleges which are now offering seminars of the "refresher-course" type for the benefit of the practicing pharmacist. At a four-day seminar held February 14, 16, 21, and 23, eight discussion periods, each led by an expert in his field, were held covering the following topics: Sale of dangerous drugs, antibiotics, hydrophylic ointments, economic problems of pharmacy, antihistaminics, The Narcotic Act, ophthalmic preparations, and prescription pricing schedules.

Dr. Joseph E. Duty, superintendent of the Toledo State Hospital, addressed the February 24 meeting of the **Northwestern Ohio Branch.** The speaker described the hospital and methods of admission and gave a description of the pharmacy, including the method of purchasing and dispensing medicines. He also described the chemotherapy for the use of drugs and other indications in mental illness.

Members of the student branches of Brooklyn College, Columbia University, Fordham, Rutgers, and St. Johns were guests at the February meeting of the **New York Branch.** The joint group heard two very fine talks, the first by Dr. Tobias Yospin, instructor in oral surgery, New York University College of Dentistry, whose topic was "The Dentist—Pharmacist Relationship in Dental Health." The second address was delivered by Gustave Bardfeld, director of sales, Marvin R. Thompson, Inc., on the subject, "Building a Prescription Business on Modern Pharmaceutical Concepts."

A Buffalo Pharmacy Council meeting and dinner, with the **Western New York Branch** cooperating, was held in January. The program was arranged to give the profession current information regarding new pharmacy legislation. Speakers were: Leslie Jayne, secretary of the New York State Board of Pharmacy; Frank Emma, president and Nicholas Gesoalde, secretary of the New York State Pharmaceutical Association; and Edgar Bellis, president of the National Association of Retail Druggists.

A mid-winter dinner was given last month by the Alumni Association of the **Philadelphia College of Pharmacy and Science** in honor of Freeman P. Stroup, professor of pharmaceutical chemistry, and secretary of the alumni association, who is completing fifty years of teaching at this institution. Dr. Ivor Griffith, president of the College, paid tribute to Professor Stroup in a speech entitled, "Professor Stroup—Our Teacher."

STUDENT BRANCHES

Two addresses sponsored by the Student Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION at the **Medical College of Virginia,** Richmond, Va., were highlights of last month's activities. One delivered by Elbert J. Hicks, of Hillsville, Va., a member of the senior class of the School of Pharmacy, was based on "The Pharmaceutical Survey." Mr. Hicks pointed out the fine future in pharmacy, and some of the changes necessary to be made before pharmacy could advance to these heights. He emphasized that any changes to be made are in the hands of the registered pharmacists. In another talk Frank Lash, a Richmond pharmacist, addressed the group on "The Virginia Pharmacist." Mr. Lash compared pharmacy in Virginia with the practice of the profession in other States. He concluded that Virginia pharmacists rank high.

The 50th anniversary of the founding of the school of pharmacy at Oregon State College was recently observed with a 2-day program at that college. An open meeting of the **North Pacific Branch** in conjunction with the **O. S. C. Student Branch** of the AMERICAN PHARMACEUTICAL ASSOCIATION was held. At this meeting a plaque, awarded to the student branch for winning first place in the collegiate division of a nationwide display contest held during National Pharmacy week last April, was presented to the student group. The winning display has been reproduced in the pharmacy building for inspection by visitors.

L. L. Riggs (left), vice-president of the North Pacific Branch, presents the A. Ph. A's plaque to Charles L. Summy, president of the Student Branch of the Oregon State College School of Pharmacy, "in recognition of the most effective and distinctive display in the pharmacy student competition of National Pharmacy Week, 1948."

Members of the **St. John's University College Pharmacy Branch** viewed a film entitled "Thiamine Hydrochloride" at their February meeting. The film, available from the Eli Lilly Co., Indianapolis, Ind., describes in detail the main factors concerning Vitamin B_1 deficiencies. The main symptoms of beri-beri are graphically outlined and treatment of the disease with thiamine hydrochloride is well demonstrated. The Branch also accepted an invitation to attend a discussion of the proposed extended pharmacy course which was held at Rutgers University College of Pharmacy on February 24.

Community public health problems was the topic for discussion at a meeting of the **University of Georgia Branch.** The guest speaker was Mr. Fred Johnson, district engineer for the Georgia State Board of Health. An announcement was also made of a new course, "Household and Animal Health Products," which will be added to the curriculum this spring. The course is intended to acquaint students with problems of insecticides, fungicides, rodenticides, herbicides, fumigants and with the dispensing of products to be used in animal health.

Donald A. Clarke, Apothecary in Chief of the New York Hospital, recently spoke to members of the **Columbia University College of Pharmacy Branch** on "Opportunities in Hospital Pharmacy." Students were further enlightened on this subject during the question and answer period which followed Mr. Clarke's talk.

The program of the **Massachusetts College of Pharmacy** for the next few months includes a series of talks on the following subjects: Detailing, wholesaling, manufacturing, and retailing.

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FROM THE SECRETARY'S DIARY FOR JANUARY 21 TO FEBRUARY 8

21st An early morning arrival in Chicago on this cold January day and greatly surprised to receive an immediate room assignment at the Palmer House where the American Council on Pharmaceutical Education met to consider the reports on recent inspections of colleges of pharmacy and to settle important questions dealing with accreditation policies.

22nd Again with the Council on Pharmaceutical Education during the early hours and then to the meeting of the Committee on the Coordination of Medical Activities at A.M.A. headquarters. Here the discussion centered on medical manpower for the armed services. Back to the meetings of the American Council on Pharmaceutical Education for its concluding session and then a visit with the Curriculum Committee of the American Association of Colleges of Pharmacy and found this group struggling with the problem of working out a sound curriculum for the pharmacy course quite irrespective of the length of time required to properly teach it. Returning to Washington on the "Capitol Limited" where discussions on military medical personnel and other matters were continued with Colonel Robinson and Admiral Dearing and later a long session on curriculum problems with Dr. Blauch, who struggled with the pharmacy curriculum for the Pharmaceutical Survey.

24th Early to the Army Medical Center to join representatives of the U. S. Public Health Service, Army and Navy medical personnel and selected private practitioners in Post Graduate Course No. 1 on Medical Aspects of Nuclear Energy. Comparing notes with Senior Pharmacist George Archambault throughout the course, which was concluded on February 1, and found much that could be applied to the training of key personnel in pharmacy should the need for civil defense in this field become urgent.

25th Parts of this and succeeding days spent in absorbing nuclear energy fundamentals and the consequences of this type of warfare. Other portions of the days and nights used to keep abreast of the regular routine. Among the visitors to headquarters was Robert A. Hudspeth, member of the pharmacy board of New South Wales, who gave the staff some interesting highlights on pharmaceutical practice "down under" and some pungent reactions to the American drugstore.

26th A session with the Finance Committee in Baltimore and also checking the Association's bonds with Treasurer Schaefer and the auditor in the vaults of the Baltimore National Bank.

29th Today and yesterday spent with the Honorary and Reserve Consultants and Staff of the Bureau of Medicine and Surgery of the Navy at the Navy Medical Center at Bethesda. This is a fine group of capable physicians, dentists, pharmacists, nurses and allied scientists who come from all over the United States once a year to listen to reports from the Surgeon General's staff and give advice on problems which bother the Bureau. Late this day conferring with President Little, B. V. Christensen and others attending the annual meeting of the representatives of the American Council on Education.

2nd Recovering from a heavy cold but able to attend the Board meeting of the American Social Hygiene Association and the luncheon which commemorated Social Hygiene Day with Surgeon General Scheele and Mrs. Frances Bolton, the highly effective congresswoman from Ohio, as the principal speakers.

4th Much of these days devoted to publication matters and conferences with advisers on art, make-up and copy in Washington, Newark and New York. Gradually revamping the staff organizational setup to bring more and more latent talent into the production of a top-flight publication for the practicing pharmacists.

7th After a week end at Red Bank to complete the transfer of the domicile to Washington, a busy day at the office even for a Monday because of much mail and many visitors. Glad to welcome Dr. and Mrs. George D. Beal, en route to Pittsburgh from a sad errand in Florida where Mrs. James H. Beal, widow of one of pharmacy's most honored statesmen and mother of George, had been laid to rest.

8th Keeping the long distance wires hot with arrangements for convention programs, prize awards, and discussions with other Association officials on current problems. Now we have a new managing editor in Walter H. McDonald who started working with us today. A late afternoon conference with R. Lincoln McNeil, president of the American Drug Manufacturers Association, who was in Washington for the day.

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use any syringe without clogging

Drawn up and administered through a needle as fine as 20- or 21-gage.

higher
INITIAL LEVELS

Blood levels 133 times higher than the commonly accepted therapeutic level in a half hour or less, with a single 1 cc. intramuscular injection.

longer-lasting
HIGHER LEVELS

Effective therapeutic levels for 24 hours or longer.

extra
MARGIN OF EFFECTIVENESS

Earlier dominance over infection and avoidance of penicillin-fastness.

for more effective, more convenient therapy for office, clinic, and house calls

PENICILLIN S-R
for more penicillin per cc.

Each cubic centimeter with aqueous diluent contains:

Crystalline procaine penicillin G	300,000 units
Crystalline sodium penicillin G buffered	100,000 units

PENICILLIN S-R
for trouble-free preparation and injection

No oil, no wax, no added suspending or dispersing agents to plug needle, clog syringe or slow up injection. No vigorous shaking to prepare. Any syringe can be used. Needle and syringe clean easily after use.

PENICILLIN S-R
for patient preference

Completely absorbed, leaving no nodules or cysts. Minimal pain on injection.

Medical journal ads, an intensive direct mail campaign and the efforts of our medical service representatives in your locality add up to specification for PENICILLIN S-R in your pharmacy. Meet the demand with ample stocks.

PENICILLIN S-R is supplied in both one-dose (400,000 units) and five-dose rubber-diaphragm-capped vials. When diluted according to directions (with Water for Injection, U.S.P., Normal Saline Solution, U.S.P., or 5 per cent Dextrose Injection, U.S.P.), each cc. contains 300,000 units of crystalline procaine penicillin-G and 100,000 units of buffered crystalline sodium penicillin-G. The one-dose vial is also available with an accompanying ampoule of Water for Injection, U.S.P., if desired. Potency of the suspension is maintained for seven days at refrigerator temperatures.

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AUREOMYCIN (*continued from page 169*)

lyticus beta and parenteral administration gave some protection against all three organisms. Multiple injections were more effective than single injections.

In addition to the study of the action of a drug on experimental infections in animals as preliminary to clinical trial, the trial of the drug in animals experimentally infected with animal diseases is of economic importance. Little[1] has made a number of such studies including tests on mice infected with the organisms of swine erysipelas. Thirty mg./Kg. of aureomycin were required to give complete protection to mice against this organism, which also responds to penicillin. Chicks infected with *Pasteurella multocida*, the organism causing fowl cholera and closely related to the organism responsible for human cholera, were protected by this new antibiotic. *Shigella gallinarum*, the causative agent for fowl typhoid, was more resistant to aureomycin, however. It required 1 mg. at four-hour intervals to yield 70% protection.

Clinical Results

In the last analyses, the proof of the value of any drug is its ability to give a high degree of therapeutic activity with a minimum of undesirable side reactions. Aureomycin has been studied clinically in a number of bacterial, viral and rickettsial diseases.

The coccal infections responded well to aureomycin administered orally. In gonorrhea the response was not as satisfactory as with penicillin, however. The results on urinary tract infections, as found by Collins,[1] *et al.*, are difficult to interpret (the least favorable types of cases were chosen) but appear to be favorable in comparison with other drugs under similar circumstances. Infections due to *Proteus vulgaris* and *Pseudomonas aeruginosa* were not responsive to aureomycin. Results on typhoid fever and acute *Salmonella* infections were difficult to interpret. Urinary tract infections due to *Coli-aerogenes* and *S. fecalis* responded well to the drug.

Recently Spink,[2] *et al.*, studied the effect of aureomycin against brucellosis in Mexico due to *Brucella melitensis*, a very malignant form of the disease. Because of the severity of the disease in Mexico, there are many "control" data available on the course of the untreated disease, and the effect of vaccines, sulfonamides and streptomycin with and without sulfonamides. These workers found a consistent and abrupt change in the disease for the better only in those patients receiving aureomycin. The fact that aureomycin is apparently more effective than streptomycin clinically against this disease is doubly interesting because *in vitro* and in the infected chick embryo aureomycin does not inhibit the multiplication of *brucella* as effectively as streptomycin. The recommended dosage in such infections is a total of 0.1 Gm. the first day in four divided doses, a total of 0.6 Gm. the second day, 1.6 Gm. the third day, and 2 Gm. the fourth day. Until further information is available it is recommended that the drug therapy be continued for ten days. A definitive statement cannot be made on the effectiveness of aureomycin in such a disease until the patients can be followed for possible clinical and bacteriological relapse.

In 200 cases, Braley and Saunders[1] used aureomycin borate 0.5% locally in a number of ocular infections and found no evidence of damage to either the cornea or the conjunctiva. The drug was effective against several gram-positive cocci and gram-negative bacilli. It was effective in inclusion conjunctivitis and in *herpes simplex* of the cornea. Although the results in epidemic kerato-conjunctivitis are not unequivocal, it is more effective than any other antibiotic or drug tried by these workers.

Viral and Rickettsial Diseases

As important as the effect of aureomycin on the various bacterial infections is, it is the activity which the drug exerts on viral and rickettsial diseases that sets it apart from other antibiotics in dramatic fashion.

Studies on embryonated hens' eggs, mice and guinea pigs indicate that aureomycin has promise against the viruses of the psittacosis-lymphogranuloma group and rickettsiae of the spotted fever, typhus fever, scrub typhus fever and Q fever groups, although the drug showed no activity against these organisms *in vitro*.

Wright,[1] *et al.*, studied the use of aureomycin in 35 cases of *lymphogranuloma venereum* and obtained excellent curative results not only against the principal

invader, but also against secondary bacterial invaders. Fourteen of the cases were followed for two to sixteen weeks after hospitalization from which it was shown that the curative effects of the drug persist. Ulcerative lesions of *granuloma inguinale* were healed by the use of aureomycin.

Q Fever Problem in California

Q fever, once considered to be an exotic disease, has become a real problem in California. At present although a limited number of cases have been treated with aureomycin, the new antibiotic appears to have a beneficial therapeutic effect. In several exceptionally ill patients aureomycin relieved the symptoms, in many cases dramatically. The duration of the fever in most cases has been very short. In some cases the response was not so great and it is believed that response to the drug is related to many factors such as the stage of the disease when treatment is begun. Although 2 out of 19 cases showed relapse, they remained free from fever during a second course of treatment with aureomycin.

Ross,[3] *et al.*, found in 13 cases of Rocky Mountain spotted fever treated with aureomycin a rapid decline in temperature in a little over two days and striking clinical improvement. Comparison with paraminobenzoic acid, heretofore the only drug regarded to be "specific" for this disease, shows aureomycin to be more effective in every way.

Primary atypical pneumonia ("virus pneumonia") is a respiratory disease so far diagnosed only by exclusion, since the causative agent is not known. Doctors Schoenbach and Bryer[4] recently reported on 18 cases of this disease treated with aureomycin. All patients were extremely ill and some of them had been given penicillin and sulfadiazine without effect. Prompt clinical recovery was noted soon after therapy with aureomycin was begun. The authors believe the results to be sufficiently significant to warrant its continued use.

Side Effects

No toxic side effects other than occasional very mild symptoms were reported in the clinical studies. It must be pointed out, however, that only a limited number of patients have received the drug and evidence of undesirable qualities may be exhibited on later observations. Nausea, vomiting, mild diarrhea and loss of appetite have been observed fairly frequently. Occasional mild drowsiness has been reported as have 1 or 2 cases of drug rash. In no case were symptoms sufficiently severe to warrant withdrawal of the drug.

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FRED J. GRIFFITHS

Fred J. Griffiths, executive secretary of the National Association of Chain Drug Stores, died February 5 in New York City at the age of 69 years.

Mr. Griffiths, a registered pharmacist, devoted his entire career to pharmacy. As a young man he practiced retail pharmacy in Buffalo, N. Y., and later managed a pharmacy in New York City.

Mr. Griffiths was a director of the American Foundation for Pharmaceutical Education, a delegate to the National Drug Trade Conference and a member of the board of trustees of the Columbia University College of Pharmacy. He had held membership in the AMERICAN PHARMACEUTICAL ASSOCIATION since 1937.

Dr. Robert L. Swain and Dr. Hugo H. Schaefer represented the ASSOCIATION at the funeral services held in New York City.

NITROGEN MUSTARD THERAPY

In a recent study of 40 patients having Hodgkin's disease, leukemia, lymphosarcoma and carcinoma of the lung, Dr. Solomon Ben-Asher found that nitrogen mustard [methyl-bis-(β-chlorethyl)amine hydrochloride] gave dramatic results with patients having Hodgkin's disease who were Roentgen-ray resistant. In patients at the Greenville Hospital and Medical Center, Jersey City, N. J., with lymphatic leukemia, myelogenous leukemia, and lymphosarcoma the results were not so encouraging. The nitrogen mustard did not seem to have benefit in carcinoma of the lung either. The most important reaction of the drug, which was administered intravenously in a daily dose of 0.1 mg./Kg. was its effect on the blood which consisted of leukopenia, lymphopenia, granulocytopenia and thrombocytopenia.—*Am. J. Med. Sci.*, **217**, 162 (1949).

New A. Ph. A. Members

THE ASSOCIATION EXTENDS A CORDIAL WELCOME TO THE FOLLOWING MEN AND WOMEN WHO WERE ACCEPTED FOR ACTIVE MEMBERSHIP DURING THE MONTH PRECEDING PREPARATION OF THIS ISSUE.

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Bachman, Gustav (a life member), Minneapolis, Minn., Nov. 11, 1947
Becker, Irwin A. (a life member), Chicago, Ill., March 4, 1947
Bort, Dean, Louisville, Ohio
Burt, H. V., Rock Island, Ill., Aug. 27, 1948
Campbell, Robert E., Baltimore, Md.
Colomes, A. B., New Orleans, La.
Felter, F. C., Portland, Ore., Feb. 28, 1948
Griffiths, F. J., New York, N. Y., Feb. 5, 1949
Halbkat, Frank W., Webster, S. D., June 17, 1948
Haschenburger, Edmund O., Lincoln, Nebr., Oct. 11, 1948
Herman, Theodore H., Creve Coeur, Mo., Nov. 15, 1948
Huth, Walter C., Milwaukee, Wis., Dec. 1, 1947
Johnson, Leslie R., Tucson, Ariz.
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the good without the bad

COMBISUL

(COMBINED SULFONAMIDES)

OBSERVATION

"... a saturated aqueous or urinary solution of one derivative of sulphanilamide could still be fully saturated with a second and third sulphonamide ... each of the compounds behaving as though it were present alone and exerting no influence on the solubility of the others."[1]

CONCLUSION

"... the danger of the formation of sulphonamide crystals in the renal tubules could be considerably reduced by employing combinations of *partial* dosages of two or three therapeutically equivalent sulphonamides rather than the *full* dosage of any one single compound."[1]

APPLICATION

With COMBISUL* (consisting of equal parts of sulfadiazine, sulfathiazole and sulfamerazine), full therapeutic sulfonamide effect is obtained, while the danger of renal toxicity is markedly decreased. Treatment with the combined sulfonamides is characterized by infrequent crystalluria, never of the "massive" type; absence of any signs of serious renal irritations; rarity of nausea and vomiting; and decreased incidence of allergic reactions.[2]

PACKAGING: COMBISUL, combined sulfonamides, is available in tablets containing 0.166 Gm. sulfadiazine, 0.166 Gm. sulfamerazine and 0.166 Gm. sulfathiazole—a total of 0.5 Gm. per tablet. Bottles of 100 and 1000 tablets.

COMBISUL Liquid is available in bottles of 4 and 16 oz. Each teaspoonful (4 cc.) contains 0.166 Gm. sulfadiazine, 0.166 Gm. sulfamerazine and 0.166 Gm. sulfathiazole—a total of 0.5 Gm.

BIBLIOGRAPHY: (1) Lehr, D.: Brit. M. J. 2:943, 1947. (2) Lehr, D.: Brit. M. J. 2:543, 1948.

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COMBISUL

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N. F. Revision Under Way . . .

THE Committee on National Formulary of the AMERICAN PHARMACEUTICAL ASSOCIATION at its recent meeting in Washington, D. C., approved admission of 146 items for the N. F. IX which is now in course of preparation. Of these, 112 are now in the U. S. P. XIII.

Of the items dropped from N. F. VIII, 41 will be admitted to the U. S. P. XIV.

According to present plans the ninth edition of the National Formulary will include for the first time tolerances for weight variations of dry-filled ampuls which will be based upon a comprehensive statistical study by the staff of the AMERICAN PHARMACEUTICAL ASSOCIATION Laboratory.

Standards for the disintegration time of tablets also will be introduced for the first time in N. F. IX. These are but two examples of several new types of specifications planned for the next edition of the National Formulary. In the new edition, as in previous editions, the main emphasis will be upon revised and improved specifications for strength, quality, purity and identity of drugs included in the National Formulary.

Revision and publication of the National Formulary is an important service of the AMERICAN PHARMACEUTICAL ASSOCIATION.

The lists of new and discontinued drugs as of March 1, 1949, follow:

Articles Not Included in N. F. VIII But Admitted to N. F. IX

Alum
Alum, Exsiccated
Amaranth Solution, Compound
Amobarbital (Amytal)
Amobarbital Elixir
Amobarbital Sodium
Amobarbital Sodium Capsules
Amobarbital Sodium Injection
Amobarbital Tablets
Anise Water
Anthralin
Anthralin Ointment
Arsenic Trioxide

Belladonna Ointment
Benzyl Benzoate, Saponated
Betanaphthol
Boroglycerin Glycerite
Butyl Aminobenzoate

Caffeine, Citrated
Calcium Iodobehenate
Camphor and Soap Liniment
Camphorated Parachlorophenol
Chalk Mixture
Chalk, Prepared
Charcoal, Activated
Chloroform Liniment
Cholera Vaccine
Chromium Trioxide
Cinnamon Spirit
Clove
Cod Liver Oil Emulsion
Cresol Solution, Saponated

Dehydrocholic Acid
Dehydrocholic Acid Tablets
Dibucaine Hydrochloride (Nupercaine Hydrochloride)

Effervescent Powders, Compound
Eosin YS (D and C Red No. 22)
Ethyl Aminobenzoate Ointment
Eucalyptus Oil

Fennel Water
Fluorescein (D and C Yellow No. 7)
Formaldehyde Solution
Frangula

Gas Gangrene Antitoxin, Bivalent
Gas Gangrene Antitoxin, Pentavalent
Gas Gangrene Antitoxin, Trivalent
Ginger
Ginger Fluidextract
Glutamic Acid Hydrochloride

Glutamic Acid Hydrochloride Capsules

Histidine Monohydrochloride Injection
Hyoscyamus
Hyoscyamus Tincture

Lard
Lard, Benzoinated
Lavender Spirit
Lavender Tincture, Compound
Lead Acetate

Mercurial Ointment, Mild
Mercurial Ointment, Strong
Mercurous Chloride, Mild
Mercury
Mercury Oleate
Methylcellulose
Methylene Blue
Methylrosaniline Chloride
Monoethanolamine
Mustard, Black
Myristica
Myrrh
Myrrh Tincture

Neoarsphenamine

Orange Flower Syrup
Orange Peel, Bitter, Tincture

Penicillin Ointment
Petrolatum, Liquid, Light
Phenacaine Hydrochloride
Phenol Ointment
Plague Vaccine
Potassium Acetate
Potassium Arsenite Solution
Potassium Carbonate
Potassium Citrate
Potassium Citrate, Effervescent
Potassium Mercuric Iodide
Potassium Sodium Tartrate
Procaine Borate

Quinine Bisulfate

Racephedrine Hydrochloride
Racephedrine Hydrochloride Solution
Racephedrine Hydrochloride Tablets
Red Saunders
Rhubarb
Rhubarb Syrup, Aromatic
Rhubarb Tincture, Aromatic

Rutin
Rutin Tablets

Salicylanilide
Salicylanilide Ointment
Scarlet Fever Streptococcus Antitoxin
Scarlet Fever Streptococcus Toxin
Scarlet Red Sulfonate
Senna
Senna Fluidextract
Senna Syrup
Serum, Normal Human
Silver Nitrate, Toughened
Silver, Mild, Protein
Soap, Hard
Soap, Soft, Liniment
Sodium Dehydrocholate Injection
Sodium Carbonate, Monohydrated
Sodium Hydroxide
Sodium Hypochlorite Solution
Sodium Perborate
Sodium Sulfite, Exsiccated
Sodium Thiosulfate
Spearmint
Spearmint Spirit
Spearmint Water
Stearic Acid
Stramonium
Stramonium Extract
Stramonium Tincture
Strychnine Sulfate
Strychnine Sulfate Tablets
Sulfarsphenamine
Sublimed Sulfur

Tannic Acid
Tannic Acid Glycerite
Tannic Acid Ointment
Tar, Juniper
Tar, Pine
Tar, Pine, Ointment
Tetanus and Gas Gangrene Antitoxins
Theobromine
Theophylline Tablets
Theophylline and Sodium Acetate
Theophylline and Sodium Acetate Tablets
Thimerosal Jelly
Thimerosal Ointment
Thimerosal Sodium (Merthiolate)
Thimerosal Tincture
Thymol
Tragacanth Mucilage

Undecylenic Acid
Undecylenic Acid Ointment

Articles Official in N. F. VIII But Not Admitted to N. F. IX

*Acacia Syrup
*Acetanilid Tablets
*Acetic Acid
Acetylsalicylic Acid Paste, Compound
Aconite and Chloroform Liniment
Allyl Isothiocyanate
Almond Water, Bitter
Aloe and Mastic Pills
*Aluminum Acetate Solution
*Aluminum Subacetate Solution
*Aluminum Sulfate
Ammonium Valerate Elixir
Apocynum
Aralia
Arsenic and Mercuric Iodides Solution
Arsenic Triiodide

Barium Chloride Tablets
Bismuth Paste
Black Lotion
Bryonia
*Cacao
*Cacao Syrup
Calamus
*Calcium Gluconate Tablets
*Calcium Lactate Tablets
Calumba
Cantharides Cerate
*Carbarsone Tablets
Carminative Mixture
Cascara Sagrada Elixir
Cataria
Cataria and Fennel Elixir
Cauiophyllum
Cerate
*Cherry Juice
*Cherry Syrup
Cimicifuga
Cimicifuga Fluidextract
Convallaria
Copaiba Mixture
Corpus Luteum
Cotarnine Chloride
Cotton Root Bark
Cudbear
Cudbear Tincture
Cudbear Tincture, Compound

Echinacea
Ethyl Chaulmoograte
Ethylhydrocupreine Hydrochloride
Eucaine Hydrochloride
Eupatorium
*Ephedrine Hydrochloride Tablets
*Ephedrine Sulfate Ampuls
*Ephedrine Sulfate Capsules

Ferric Cacodylate Ampuls
Ferric Sulfate Solution
Ferrous Carbonate, Saccharated, Capsules
*Ferrous Sulfate Syrup

Gambir
Gambir Tincture, Compound
Glycerogelatins
Gold and Sodium Thiosulfate

*Homatropine Methylbromide
*Homatropine Methylbromide Tablets
Hydrastic Extract
*Hydroxystearin Sulfate
Iodine and Zinc Iodide Glycerite
Iodochlorohydroxyquinoline
Ipecac and Opium Syrup
Ipecac and Opium Tincture

Jalap Powder, Compound

Kamala
Kino
Kino Tincture
Kola

*Lactic Acid
Lead Oleate Ointment
Lead Oleate Plaster
Lead Subacetate Cerate
Leptandra
Leptandra Extract
Lime Liniment
Lithium Benzoate
Lithium Carbonate
Lithium Citrate
Lithium Salicylate

Matricaria
Mercuric Cyanide
Mercuric Iodide, Red, Tablets
Mercuric Nitrate Ointment
*Mercury Bichloride
Mercury with Chalk
Methenamine Ampuls
Mezereum

Nux Vomica Alkaloids Solution

Ovary
Ovarian Residue

*Paraffin
Paraffin, Chlorinated
Pelletierine Tannate
Perfumed Spirit
Petroxolin, Solid
Phenol, Camphorated
Phenol Glycerite
Phenolated Oil
Phenolated Water
*Pilocarpine Hydrochloride
Pituitary, Anterior
Pituitary, Whole
Potassium Hydroxide Solution
*Potassium Nitrate
*Procaine Hydrochloride Ampuls
*Procaine Hydrochloride Solution
*Propylene Glycol

Quinine Ethylcarbonate
*Quinine Sulfate Capsules

*Raspberry Juice
*Raspberry Syrup
Rose
Rosin Cerate
Rosin Cerate, Compound

Salvia
Sanguinaria
*Scopolamine Hydrobromide Tablets
Senega Syrup
Serenoa
Serenoa and Sandalwood Elixir, Compound
Serenoa Fluidextract
Serpentaria
Soap Liniment, Solid
Soda and Mint Solution
Sodium Arsenate, Exsiccated
Sodium Arsenate Solution
*Sodium Bicarbonate Tablets
*Sodium Salicylate Ampuls
Sodium Salicylate and Gelsemium Elixir, Compound
Sodium Salicylate and Iodide Ampuls
Sparteine Sulfate
*Stibophen
*Stibophen Ampuls
Stramonium Ointment
Succinchlorimide
Succinchlorimide Tablets
Sulfonethylmethane
Sulfonmethane
Sulfur Ointment, Alkaline
Suprarenal

Taraxacum
Taraxacum Elixir, Compound
Taraxacum Fluidextract
Triticum
Triticum Fluidextract
Turpentine Liniment, Acetic
Turpentine Oil Emulsion

Uva Ursi
Uva Ursi Fluidextract

Valerian
Valerian Fluidextract
Valerian Tincture
Valerian Tincture, Ammoniated
*Vanilla
*Vanilla Tincture
*Vanillin Spirit, Compound

Yellow Lotion

Zea
Zea Fluidextract
Zinc Acetate
Zinc Compounds and Eugenol Cement
Zinc Iodide
*Zinc Oxide Paste

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* Admitted to U. S. P.

LEASURE KLINE DARBAKER

Dr. Leasure Kline Darbaker, 70, Emeritus Professor of Pharmacognosy and Bacteriology, University of Pittsburgh School of Pharmacy, died on February 6 of a heart attack at his home in Wilkinsburg, Pa.

Taking an active part in scientific associations and societies, Dr. Darbaker was a life member of the AMERICAN PHARMACEUTICAL ASSOCIATION, a member of the Pennsylvania Pharmaceutical Association, a former president of the Pennsylvania Academy of Science, and Chairman of the Pittsburgh Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION. He was a member of Kappa Psi and Phi Sigma.

Dr. Darbaker received his Ph.G. degree in 1906 and his Phar.D. degree in 1910 from the University of Pittsburgh. He also held degrees from Ohio Northern University and was honored by that institution with the award of Sc.D. degree in 1937.

For about forty years he was a member of the faculty of the School of Pharmacy at the University of Pittsburgh, starting in 1907 as Assistant in Materia Medica, Pharmacognosy and Bacteriology. In 1911 he became professor of Pharmacognosy and Bacteriology. Dr. Darbaker was the author of several manuals used in his courses and a co-editor of Kraemer's *Scientific and Applied Pharmacognosy*.

COLLEGES

The first Georgia chapter of Rho Chi was installed at the **University of Georgia School of Pharmacy** on January 31. Dr. Kenneth Waters, dean of the School of Pharmacy presided. Dean Hugh C. Muldoon of Duquesne University presented the charter. Dr. R. C. Wilson, dean emeritus of the Pharmacy School, Dr. Walter D. Strother, and Prof. Francis F. Millikan, all members of the faculty, were included among the charter members. Sixteen students became charter members and officers are: George E. Mudter, president; Harold Mote, vice-president; Robert Monroe Styles, secretary-treasurer, and Stephen E. Blackwell, historian.

The resignation of Dr. LeRoy C. Keagle from the faculty of the **College of Pharmacy of Rutgers University** to accept the position of Professor of Pharmacy and Chairman of the **Pharmacy Department of the University of Buffalo** was announced on January 21 by President Robert C. Clothier of the State university. Dr. Keagle has been Assistant Professor of Chemistry and Chairman of the Faculty Committee on Athletics at the Rutgers University College of Pharmacy since 1945. He assumed his new duties at the University of Buffalo on February 1.

Arthur S. Wardle, president of the board of trustees of Albany College of Pharmacy, received an honorary doctor of laws degree at the midwinter commencement of **Union College,** Albany, N. Y., on January 29, Carter Davidson, college president, announced. Mr. Wardle, prominent Hudson pharmacist, was elected to the Pharmacy College board in 1914 and has served as its president for 10 years. A graduate of Albany College of Pharmacy in 1900, he has been actively engaged in the practice of pharmacy for 48 years. He is a life member of the AMERICAN PHARMACEUTICAL ASSOCIATION.

George A. Bender, editor of the Parke, Davis publication, *Modern Pharmacy*, addressed a combined meeting of the Kings County Medical Society and the Alumni Association of the **Brooklyn College of Pharmacy** on March 8. His topic was "Your Doctor and You—Contact or Collision." Dr. Charles Solomon of the Kings County Medical Society acted as moderator in the discussion which followed, regarding professional relations.

Dr. Wendell M. Stanley, chairman of the department of Biochemistry and director of the virus laboratory at the **University of California,** presented a talk on "Biochemical Studies on Viruses," at the Northern California Branch of the American Chemical Society's January meeting in Berkeley. The newly established U. C. chapter of Rho Chi held its formal initiation of members on January 28 with Fred Johnson, a member of the fraternity who is now associated with Cutter Laboratories, conducting the ceremony. Faculty members initiated were: Drs. D. C. Brodie, J. J. Eiler, F. M. Goyan, W. Irons, and O. Wiswell. Officers of the new chapter are: LeRex Larrick, president; Patricia Lee, secretary-treasurer; and John Preston, historian.

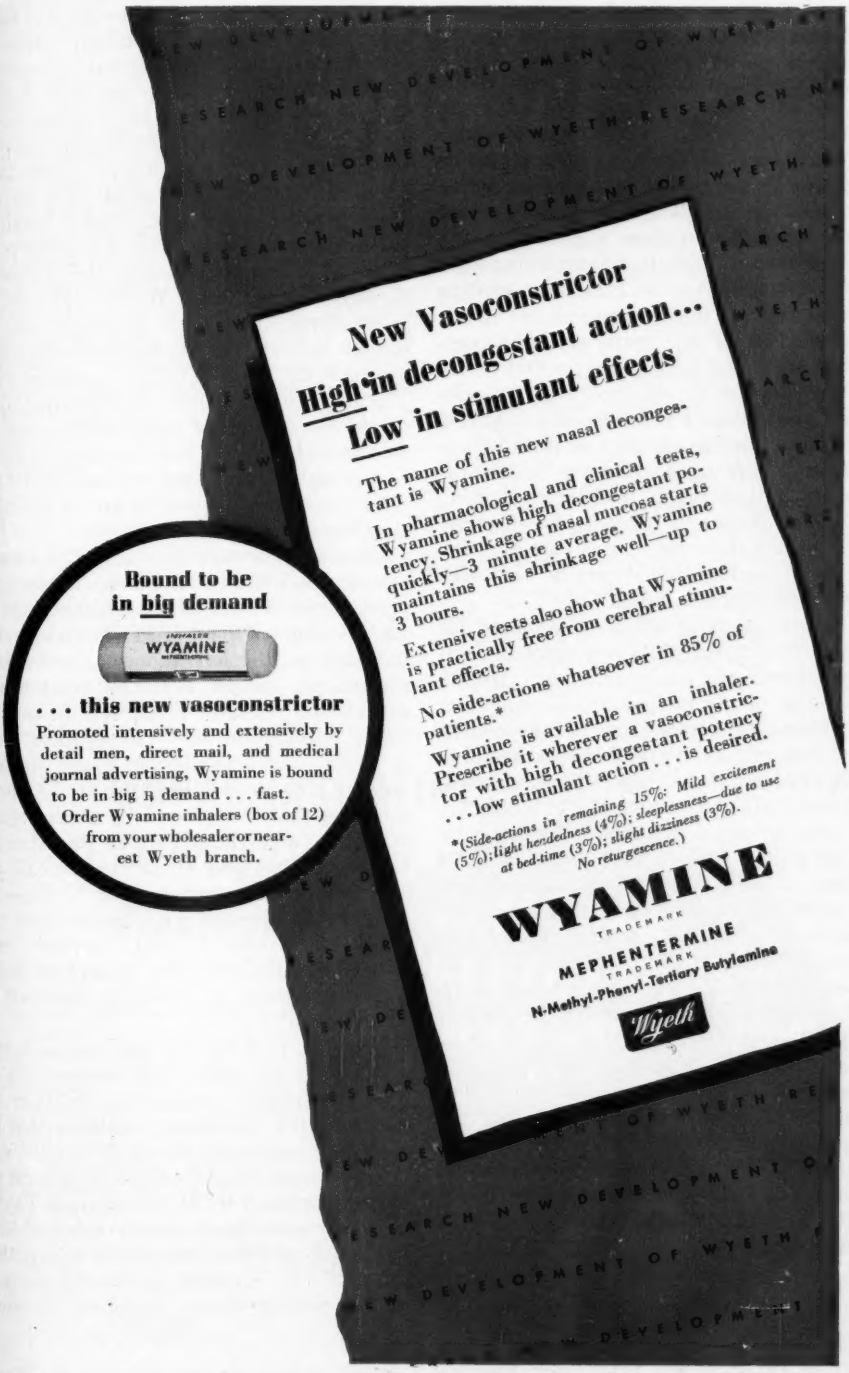
The **American Institute of the History of Pharmacy,** located at the University of Wisconsin School of Pharmacy, has been designated "as the center of the endeavor in the history of pharmacy in the Americas," by the First Pan-American Congress of Pharmacy.

ASSOCIATIONS

Current information on present-day pharmaceutical practices and services was made available to 250 Cleveland, Ohio, pharmacists, educators, manufacturers, and students at **Western Reserve Pharmacy Institute** held on February 10 and 11, under the joint sponsorship of the School of Pharmacy Alumni and the pharmaceutical organizations of Greater Cleveland. The Institute brought together prominent leaders from all branches of the profession—educational, hospital, manufacturing, retailing, state board and wholesaling.

Dr. Ernest Little, president of the AMERICAN PHARMACEUTICAL ASSOCIATION and professor of chemistry at Rutgers University, opened the sessions. Other speakers were Dr. Robert L. Swain, editor of *Drug Topics*, New York City; Dr. George D. Beal, assistant director of the Mellon Institute, Pittsburgh; Dr. W. Arthur Purdum, president of the American Society of Hospital Pharmacists and chief pharmacist, Johns Hopkins, Baltimore; Dr. Carson P. Frailey, executive vice-president of the American Drug Manufacturers' Association, Washington, D. C.; Dr. Frank W. Moudry, chairman of the executive committee, National Association of Retail Druggists, St. Paul, Minn.; Mr. Thomas G. Crawford, director of personnel, Walgreen Drug Co., Chicago; Mr. Mearl D. Pritchard, first vice-president of the AMERICAN PHARMACEUTICAL ASSOCIATION and retail pharmacist, Buffalo; Mr.

BRIEFLY NOTED
(*Continued on page 191*)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*p*H INDICATORS AND BUFFER SOLUTIONS (*continued from page 149*)

culating the phosphate buffer system shown in Table III for use both in the preparation of standards and of vehicles.

Discussion

The theoretical basis for this report is available in the literature. The theory of dichromatism or dichroism and practical remedies similar to those suggested above are well known.[8] Both of the authors have verified the effectiveness of the compensating dye and the light filters recommended above. The selection of this material was accomplished partly by trial and error and partly by applying the known theory to the published properties of commercially available material. The use of three vials and three samples of the same unknown with three different indicators has been checked using U. S. P. buffers and found to be effective. This method deserves serious consideration in view of the fact that it may be used with or without color standards.

The idea of using one color standard for three different indicators was checked carefully before it was finally accepted. During the course of the preliminary investigation one of the authors made several independent measurements of the *p*H of selected samples, always proving that it is possible to check to within 0.2 *p*H unit and usually to within 0.1 *p*H unit, using color standards differing by 0.2 *p*H unit. The arbitrary selection of 0.4 *p*H intervals for this report was based upon the experience of one of us that inexperienced observers had difficulty at first in arranging the more complete series of standards in order. The decision was made to sacrifice a certain amount of accuracy for the sake of simplicity and speed.

Gillespie's drop ratio method[8] for the direct use of solutions suggested the use of solutions of colored drawing inks for the preparation of permanent standards. The final selection was made after a rather careful study of various artists' supplies. Some of the first color charts made early in 1947 are still satisfactory.

Phosphate Buffers

The selection of the phosphate buffers given in Table III was based upon the idea that it would be desirable to provide a buffer system similar to those of the U. S. P. using two relatively safe ingredients. The concentration of 0.5M was chosen for the stock solutions for reason of simplicity, although it is doubtful if a slight increase in concentration designed to make the final buffers more nearly isotonic with blood serum would be desirable. As the buffer stands, the pure sodium biphosphate solution (diluted from 50 cc. to 200 cc. as directed) will have a freezing point of $-0.4°$ C., and the sodium phosphate solution will have a freezing point of $-0.53°$ C. as calculated by the method of Goyan, Enright and Wells.[9] The latter value corresponds to a 0.9% solution of sodium chloride, but most of the buffers used will be in the range of 0.8% sodium chloride. The approximate sodium chloride equivalent of 100 cc. of each of these buffers may be calculated by the method described by Hind, Goyan and Schwarz,[7] but it is doubtful if the differences from isotonicity are of practical significance.

Changing the concentration of the buffer system from that of Sørensen necessitates recalculation by use of the equation, $p\mathrm{H} = p\mathrm{K}' + \log (\mathrm{HPO_4^{=}}/\mathrm{H_2PO_4^{-}})$, where the formulas for the ions represent molar concentrations, and $p\mathrm{K}'$ is the apparent second dissociation constant of phosphoric acid at the concentration and temperature used. A preliminary calculation based upon a value of 6.80 for $p\mathrm{K}'$ led to the production of solutions that were found by measurement at 25° C. with the *p*H meter described by Goyan, Barnes and Hind[10] to be 0.07 *p*H unit below the nominal value.* This led to a revaluation of $p\mathrm{K}'$ based upon the work of Hitchcock and Taylor[11] who showed that their standard phosphate at 25° C. was the same as a solution described by Clark[3] at 20° C.

The fact that the two *p*H values agreed within 0.01 *p*H unit (6.857 versus 6.85 for total phosphate concentration of 0.05 *M*) suggested the interesting possibility that the change in temperature from 20° to 25° very nearly compensates for slight change in *p*H scale introduced by Hitchcock and Taylor. This new scale, based upon a value of 4.005 for the *p*H of 0.05 *M* potassium acid phthalate at 25° C., is nearly universally accepted at the present time; therefore, it would

* Measurements made by Aldo Fontana using a glass electrode repeatedly checked against 0.05 *M* potassium biphthalate and 0.01 *M* Borax.

seem reasonable to use the table of pK' values of the phosphate system given by Clark[3] after Cohn[12] as a basis for calculation at 25° C. A simple linear interpolation to obtain values for a total phosphate concentration of 0.125 *M* provided pK' values which were substituted into the above equation for different *p*H values given in Table III. These new values agree within the limits of experimental accuracy (about 0.02 *p*H unit) with values read from a graph of the measurements made on the preliminary buffer, thus establishing the validity of the buffer system shown in Table III. An absolute accuracy greater than 0.05 *p*H unit cannot be claimed for this system until more is known about the possible variations in the U. S. P. salts.

Summary

The fact that three of the indicator solutions of the U. S. P. may be selected for approximate *p*H measurements over most of the useful *p*H range is pointed out. Single series of color standards consisting of five vials showing transition colors, one vial showing the acid color and another showing the alkaline color, may be prepared from suitable phosphate buffers using bromothymol blue as the indicator. This one set of color standards may be used with the other two indicators, bromocresol green and thymol blue. Directions are given for reproducing the approximate colors of the standard series by the use of colored drawing inks. The use and preparation of indicator papers is discussed in terms of the *p*H of tears. The Sørensen phosphate buffer system is recalculated at equal *p*H intervals to yield solutions approximately isotonic with blood serum.

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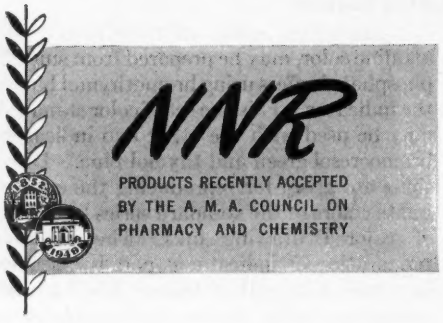

Council descriptions of new drug products only are published regularly in THIS JOURNAL *as they are accepted. Rules upon which the Council bases its action appeared in the July (7:320) 1946 issue, and may be secured in pamphlet form upon request to the Secretary, Council on Pharmacy and Chemistry, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.*

ACTIONS TAKEN BY A. M. A. COUNCIL ON PHARMACY AND CHEMISTRY

At the annual meeting of the Council on Pharmacy and Chemistry of the American Medical Association held last November at Chicago, Ill., the following actions were taken by the Council:

ACS Serum.—The status of this substance, including its preparation, availability and claimed usefulness, was reviewed.

"Over-the-Counter" Sale of Large Doses of Penicillin.—Consideration was given to the general problem of the release of penicillin for "over-the-counter" sale, regardless of its intended use. It was agreed by the Council that the difficulty of controlling such sale and the use of a product such as penicillin cannot be stressed too strongly and that the safety of the general population must be considered at all times. Further investigation will be made before the Council can issue a statement.

Status of Sulfonamide Compounds.—The status of the sulfonamide compounds was reviewed by the Council, and it was agreed that sulfanilamide and sulfaguanidine should be deleted from the next edition of *New and Nonofficial Remedies.*

Status of Newer Antibiotics.—Polymyxin, "chloromycetin" and aureomycin, three antibiotics available for some time for experimental use, were discussed with a view to determining the possible role that these materials will have in chemotherapy. The Council's consideration of these antibiotics represented merely a review of their status, and no recommendations were forthcoming.

Ultraviolet Irradiation of Plasma and Serum.—The Council has accepted for inclusion in *New and Nonofficial Remedies* a rabies vaccine that has been subjected to ultraviolet irradiation. However, it has held in abeyance submitted brands of irradiated plasma. On the basis of data presented at the annual meeting it was agreed that the evidence seems to indicate that ultraviolet irradiation will kill the virus responsible for serum jaundice and that plasma and serum submitted to such irradiation can be included in *New and Nonofficial Remedies*, provided the other requirements of the Council are met.

Antihistaminic Preparations.—The status of antihistaminic preparations was reviewed and it seemed apparent that the number of preparations on the market has served to provide confusion, and before others are introduced they should show certain advantages. The Council then agreed that it would be wise to consider criteria or qualification for acceptance of any new antihistaminic preparations and suggested for consideration criteria such as the following: (1) that the drug have a greatly increased potency over those now available so that it would be possible to give relief to certain allergic manifestations not relievable now; (2) that the drug be much less toxic than any now available, not in terms of 10% less toxicity but many times this figure; (3) that the drug be more active for a much greater duration, not just for three or four hours but several times this, possibly up to 24 hours; (4) that the drug have other than histaminic action, such as sympathomimetic action, or some other action that in some way interferes with the allergic mechanism.

Estrogenic Preparations.—One of the problems facing the Council and the medical profession is concerned with the duplication of preparations. The Council authorized the preparation of a report pointing out the undesirable features of unnecessary duplication, citing the antihistaminic drugs and estrogenic preparations as illustrations.

Status of Chlorguanide Hydrochloride Dosages.—Recent developments indicate a need for a change in the dosage schedules for this preparation. For example, it now seems evident that 0.3 Gm. of chlorguanide hydrochloride is often essential for the suppression of malaria and for the prevention or suppression of vivax malaria. Manufacturers who have submitted brands of this preparation to the Council will be asked to take this into consideration when their literature is revised.

Typhoid and Paratyphoid Vaccine Combined.—At its last meeting (Nov. 14–15, 1947) the Council voted to omit typhoid and paratyphoid vaccines combined from *New and Nonofficial Remedies.* Since that time some correspondence has ensued so that the Council gave reconsideration to the status of such mixtures. It concluded, however, that there was not sufficient evidence to justify a change in the Council's stand. Nevertheless, the Council authorized the preparation of an article for future publication.

Emulsified Mineral Oil.—It appears possible that highly emulsified mineral oil may achieve a more intimate relation with the intestinal tract tissues than the unmodified mineral oil. However, further evidence, especially in human beings, is needed to explore fully this possibility and, until such evidence is forthcoming, the Council will continue with its

acceptance of mineral oil preparations that are manufactured by normal pharmaceutical practice.

THEOPHYLLINE-METHYLGLUCAMINE.—Glucophylline—Abbott.—An equimolecular mixture of theophylline-U. S. P. ($C_7H_8N_4O_2.H_2O$) and methylglucamine ($C_7H_{17}NO_5$). Dosage forms of theophylline-methylglucamine contain not less than 95% nor more than 105% of the labeled quantities of theophylline and methylglucamine.

Actions and Uses.—Theophylline-methylglucamine is identical in action and therapeutic purpose with aminophylline (theophylline ethylenediamine) U. S. P. over which it has no advantage. It is therefore similarly useful orally and by injection to produce the effects of theophylline when a more soluble salt than theophylline and sodium acetate is needed. It is employed orally as a diuretic and myocardial stimulant for pulmonary edema and paroxysmal dyspnea in conjective heart failure, and for the relief of Cheyne-Stokes respiration. It is also useful in the relief of acute bronchial asthma, particularly in patients who have become unresponsive to epinephrine. As with aminophylline, claims for its use in coronary or peripheral vascular disease and in hypertension are not recognized on the basis of available evidence.

Dosage.—Theophylline-methylglucamine represents about 50% of theophylline, as compared to about 78% contained in aminophylline U. S. P., so that the ratio of dosage to the latter is approximately 2:3. On this basis the dosage recommended for theophylline-methylglucamine should be about one and one-half times the dose ordinarily prescribed for aminophylline.

Orally, from 0.15 to 0.75 Gm. three or four times daily after meals, given continuously for only a few days at a time with intervening rest periods of one or two days. Intramuscularly, 0.75 Gm. in 2 cc.; intravenously 0.36 to 0.75 Gm. in 10 cc. to 20 cc. As with aminophylline, intravenous injection should be made slowly to avoid untoward effects.

Tests and Standards.—

For tests and standards see *J. Am. Med. Assoc.*, 139: 309 (1949).

Abbott Laboratories, North Chicago, Ill.

Solution Glucophylline: 0.366 Gm. in 10-cc. ampuls.

Solution Glucophylline: 0.732 Gm. in 2-cc. and 20-cc. ampuls.

Enterab Tablets Glucophylline: 0.152 Gm. Each tablet is enteric coated with a resin prepared from stearic acid, phthalic anhydride and glycerin.

Tablets Glucophylline: 0.152 Gm. and 0.304 Gm.

U. S. Patent 2,161,114 (June 6, 1939; expires 1956).
U. S. trademark 334,367. (Enterab) U. S. trademark 353,674.

BRIEFLY NOTED

(*Continued from page 186*)

M. N. Ford, secretary of the Ohio State Board of Pharmacy, Columbus; Dr. E. L. Newcomb, executive vice-president of the National Wholesale Druggists' Association, New York City; Dr. George L. Webster, national president of Rho Chi., Mr. William E. Powell, field sales manager of the B. F. Goodrich Co., Akron; and Mr. John W. McPherrin, editor of *The American Druggist*, New York City.

Members of the **New State Pharmaceutical Association** have been asked to petition Congress to eliminate the necessity of having a Notary Public affix his signature to the return form reporting excise taxes. As the situation now stands, if the amount of the return is over $10 the form must be notarized. According to Nicholas S. Gesoalde, Secretary of the New York State Pharmaceutical Association, "This additional red tape could be eliminated. The druggist is already overburdened with forms to fill out and records to keep. By eliminating this extra step, the filing of returns would be expedited."

John C. Levy has resigned as executive secretary of the **Northern Ohio Druggists' Association,** after a term of almost 22 years with that organization. Mr. Levy has been executive secretary of N. O. D. A. since 1927. In 1934 he was secretary of the Retail Drug Code Authority for NRA in the 20th, 21st, and 22nd Congressional districts. When the Fair Trade Law was adopted in Ohio in 1936, he became secretary to the Cuyahoga County Fair Trade Committee. In 1943, the association formed the Western Reserve University School of Pharmacy Foundation, and Mr. Levy became acting secretary and accountant of the Foundation. For the past four years Mr. Levy was honored with the presidency of the Metropolitan Cities Drug Association Secretaries of the United States

W. A. Maynard, who served as assistant to Mr. Levy, will succeed him as executive secretary of The Northern Ohio Druggists' Association.

HOSPITAL PHARMACY

Local chapters of the **American Society of Hospital Pharmacists** are reviewing the proposed minimum standards for hospital pharmacies which will be approved and submitted to accrediting agencies this year. The Society's Committee on Minimum Standards has been working for the past several years toward establishing such standards and a number of outstanding hospital pharmacists have made worth-while contributions. Through the A. PH. A.'s Division of Hospital Pharmacy, these minimum standards will be submitted to the American College of Surgeons, the American Hospital Association and the American Medical Association

for approval and inclusion in the ACS Minimum Standards for Hospitals.

Increased interest in the institutes on hospital pharmacy has resulted in a need for two institutes this year. The first of these is scheduled for the week of June 27 at the **University of California** at Berkeley and the second will be held during the week of August 29 at the **University of Chicago.** The A. PH. A. and the A. S. H. P. will again cooperate with the American Hospital Association in sponsoring these institutes. Dr. W. Arthur Purdum, President of the A. S. H. P., who also is chairman of the program committee for the institutes, is now working with the hospital pharmacists in California in arranging the program for the June institute.

Papers to be presented at the pharmacy section of the annual convention of the **Association of Western Hospitals** in San Francisco, May 9–12, include: "Succinates in Barbiturate Poisoning" by Dr. John J. Eiler, College of Pharmacy, University of California; "Newer Analgesics" by Dr. Edward Way, College of Medicine, University of California; and "Committee on Therapeutic Agents in the Hospital" by Dr. Charles Schwartz, Chief, Pharmacy Section, Veterans Administration Branch Office No. 12, San Francisco, The Northern California Society of Hospital Pharmacists will hold a dinner meeting during the convention.

The **Johns Hopkins Hospital,** in cooperation with the Graduate School and the **School of Pharmacy of the University of Maryland,** announces that internships in pharmacy will be open to a number of 1949 or other recent graduates of recognized schools of pharmacy. Appointments will be for a period of two years, beginning July 1, 1949. During this time, interns will devote one-half time to hospital pharmacy work and one-half time to graduate study. Upon satisfactory completion of the internship and the course of study, Master of Science degrees will be conferred by the University of Maryland and Certificates of Internship will be awarded by The Johns Hopkins Hospital.

An allowance of $100 per month will be provided by the hospital, and the University of Maryland will make a reduction of 25% intuition fees. Further Information may be obtained from the school at 32 South Greene St., Baltimore 1, Md.

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C-o-r-r-e-c-t-i-o-n

Hoffmann-La Roche Inc., of Nutley, N. J., has not changed its firm name or moved the location of its home office as erroneously stated in the February issue of THIS JOURNAL. Due to a similarity of names and a coincidental issuing of announcements, the item in last month's JOURNAL with reference to Hoffmann-La Roche and Roche-Organon was garbled. It was intended to announce that Hoffmann-La Roche has appointed Paul J. Cardinal, vice president in charge of the bulk vitamin division; Dr. Max F. Furter, vice president in charge of pharmaceutical research and production; and Robert A. Hardt, vice president in charge of sales and advertsing, and that Roche-Organon Inc. had changed its name to **Organon Inc.** and moved from Nutley to Orange, N. J.

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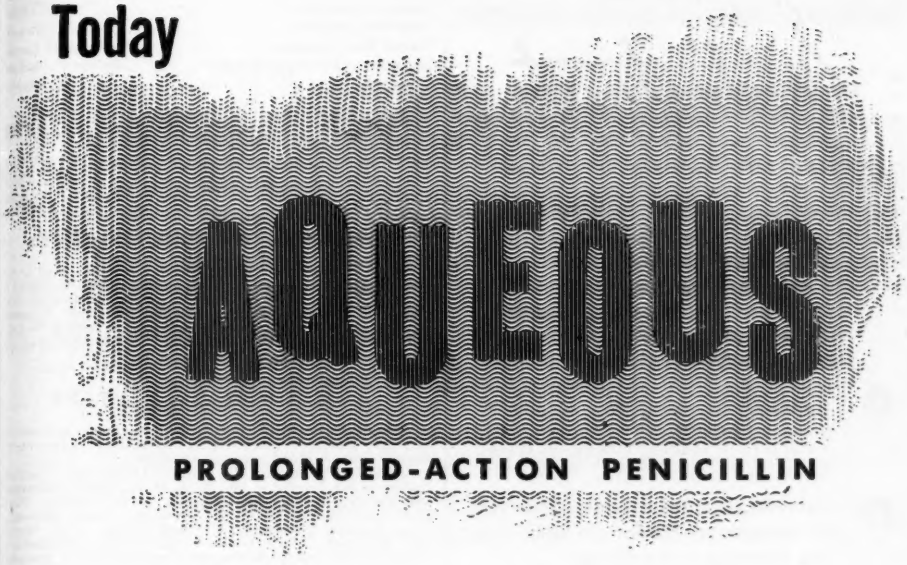

PROLONGED-ACTION PENICILLIN

ADVANTAGES FOR YOUR PATIENT

aqueous ▸ yet only 1 injection a day
aqueous ▸ minimal pain . . . no oil—no wax
aqueous ▸ prolonged therapeutic blood levels

ADVANTAGES FOR YOU

aqueous ▸ easily suspended . . . stable for 21 days under refrigeration, or a week at room temperature, with no significant loss of potency. In powder form—stable for a year.

aqueous ▸ syringe and needle need not be dry; needle blockage minimized.

aqueous ▸ syringe and needle easily cleaned.

Crysticillin

Squibb Procaine Penicillin for aqueous injection

a dry powder for the preparation of an aqueous suspension

▸ single-dose vials of 300,000 units with and without diluent
▸ multiple-dose vials of 1,500,000 and 3,000,000 units

SQUIBB A LEADER IN PENICILLIN RESEARCH AND MANUFACTURE

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Sodestrate

CONJUGATED NATURAL ESTROGENS
EQUINE WATER SOLUBLE

Effective Oral Therapy
with Minimal Dosage

ADVANTAGES

1. The conjugated estrogens in SODESTRATE are derived exclusively from natural sources (pregnant mares' urine)

2. The estrogens are carefully preserved in the water soluble form in which they are excreted by the kidney.

3. Unlike free natural estrogens which are largely inactivated and poorly utilized when given by mouth, SODESTRATE is rapidly and completely absorbed from the gastro-intestinal tract and is not inactivated by the liver.

4. Highly potent yet essentially safe and well tolerated.

5. Tonic properties of SODESTRATE impart a feeling of well being not equalled by the effect of synthetic estrogens.

SODESTRATE is available as 1.25 mg. tablets, coated orange, in bottles of 50, 100 and 500.

Constant promotion and proper sampling are working in your prescription interests.

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facts concerning

Pen-Aqua

*A new and highly practical penicillin formulation for **aqueous** injection at **24-hour** intervals.*

What it is—PEN-AQUA provides Procaine Penicillin G and buffered Potassium Penicillin G in combination for constituting an aqueous solution-suspension for intramuscular injection.

What it does—The soluble Potassium Penicillin is absorbed within an hour following injection, thus providing a correspondingly high initial blood concentration of penicillin to overwhelm invading bacteria at the outset.

The relatively insoluble Procaine Penicillin is absorbed slowly, thus providing a repository effect which sustains therapeutic penicillin blood levels for 24 hours or more in the majority of patients.

How to use it—PEN-AQUA is quickly prepared for use by introducing the directed quantity of Water for Injection, USP, or Isotonic Solution of Sodium Chloride, USP, directly into the sterile PEN-AQUA vial, with thorough shaking before the withdrawal of each dose. So constituted, each cc. contains 300,000 units of Procaine Penicillin G per cc., plus 100,000 units of Potassium Penicillin G per cc., in uniform suspension which passes through the needle freely. PEN-AQUA is absorbed completely, without nodule or cyst formation.

When to use it—PEN-AQUA may be used in all conditions amenable to systemic penicillin therapy, in cc. doses corresponding in frequency with that employed with Penicillin in Oil and Wax (Romansky Formula)—generally, one cc. each 24 hours, 12 hours in certain severe or refractory infections. PEN-AQUA is intended for intramuscular use only. Suspensions retain their potency for one week under refrigeration. In the dry state, PEN-AQUA retains full potency for a year.

How supplied—PEN-AQUA is available in *multiple-dose vials* containing 1,500,000 units of Procaine Penicillin G, plus 500,000 units of buffered Potassium Penicillin G, with space provided for the introduction of 4.5 cc. of diluent; also in *single-dose vials* containing 300,000 units and 100,000 units of Procaine and Potassium Penicillins G, respectively, with space provided for the introduction of 1 cc. of diluent.

Pen-Aqua

Bristol Laboratories' Trademark for Crystalline Procaine Penicillin G with Buffered Penicillin G Potassium for aqueous injection

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New prescription product

Product descriptions may be clipped and filed on three- by five-inch cards. These are also indexed for quick reference in the "Monthly Drug Index" appearing on the last page of each issue. A product is described in this column for the information of pharmacists who may be asked by physicians to stock the drug, or who may receive professional inquiries about it. A listing does not imply evaluation or recommendation by the Association, nor does omission of any product have significance concerning its merit.

COBIONE

Description: Vitamin B_{12} in pure crystalline form.
Form Supplied: Ampuls containing 10 micrograms of vitamin B_{12} in saline.
Action: Used in treatment of pernicious anemia.
Administration: As directed by the physician.
Source: Merck and Co., Inc., Rahway, N. J.

CORTATE BUCCAL TABLETS

Description: Desoxycorticosterone Acetate 2-mg. tablets in special base for maximum buccal absorption.
Form Supplied: Bottles of 30 and 100 tablets.
Action: Treatment of adrenal cortical deficiencies.
Administration: Tablet placed adjacent to buccal surface of the gums opposite the first molar tooth, from which absorption takes place in 30 to 60 minutes.
Source: Schering Corp., Bloomfield, N. J.

DRAMAMINE

Description: Scored tablets containing 100 mg. of β-dimethylaminoethyl benzohydryl ether 8-chlorotheophyllinate.
Form Supplied: Bottles of 100 tablets.
Action: Prevention and treatment of motion sickness.
Administration: 100 mg. 4 times daily, before meals and before retiring. May be administered rectally in 30 cc. of saline.
Source: G. D. Searle & Co., Chicago 80, Ill.

INOSITOL

Description: Capsules containing 0.5 Gm. of inositol, a member of the Vitamin B complex.
Form Supplied: Bottles of 100 capsules.
Action: Lipotropic agent.
Administration: Dose tentatively set at 1.0 Gm. 3 times daily.
Source: C. S. C. Pharmaceuticals, Commercial Solvents Corp., 17 E. 42nd St., New York 17, N. Y.

MERAMETH

Description: A sterile solution containing sodium sulfamerazine 5%, and sodium sulfamethazine, 5%.
Form Supplied: 500-cc. bottles.
Action: Treatment of bacterial infections in animals.
Administration: 0.2 to 0.6 cc. per lb. of body weight of the animal, intravenously.
Source: Sharp and Dohme, Philadelphia 1, Pa.

METIONE GRANULATED

Description: Granular form of methionine.
Form Supplied: 30-Gm. bottles.
Action: Said to be dietary aid in treatment of napkin dermatitis due to excretion of ammoniacal urine in babies.
Administration: 0.2 to 0.4 Gm. daily.
Source: The Debruille Chemical Corp., 1841 Broadway, New York 23, N. Y.

METUBINE IODIDE

Description: Bioassayed dimethyl-tubocurarine iodide containing 0.5 mg. per cc. of isotonic solution.
Form Supplied: 10-cc. rubber-stoppered ampuls.
Action: Curare-type adjuvant to inhalation anesthesia to relax abdominal muscles.
Administration: As directed by physician.
Source: Eli Lilly and Co., Indianapolis, Ind.

ORETON BUCCAL TABLETS

Description: Testosterone propionate, 2.5 and 5 mg., in special base for maximum buccal absorption.
Form Supplied: Bottles of 30 and 100 tablets.
Action: Treatment of androgen deficiencies in the

NEW PRESCRIPTION PRODUCTS

(*Concluded on Page 200*)

Ciba Announces

Ovocylin Dipropionate*

(α-*estradiol dipropionate*) **formerly* ***DI-OVOCYLIN***

Ovocylin Benzoate*

(α-*estradiol benzoate*) **formerly* ***BEN-OVOCYLIN***

The only brands of these estrogens to be promoted in the Journal of the American Medical Association

The Council's seal of approval has been given only to the Ciba brands of estradiol dipropionate and estradiol benzoate. They will be heavily promoted to physicians throughout the year. You can depend on them for doctors' acceptance.

OVOCYLIN DIPROPIONATE

	Size	Dose	Cartons
Ampuls	1 cc.	0.1 mg.	6
		0.2 mg.	50
	1 cc.	0.5 mg.	3
		1.0 mg.	6
		2.5 mg.	50
		5.0 mg.	
Multiple Dose Vials	10 cc.	0.2 mg.	per cc.
		1.0 mg.	
		5.0 mg.	

OVOCYLIN BENZOATE

	Size	Dose	Cartons
Ampuls	1 cc.	0.166 mg.	6
		0.333 mg.	50
		1.0 mg.	100
	1 cc.	1.66 mg.	5
			50
Multiple Dose Vials	10 cc.	0.333 mg.	per cc.
		1.66 mg.	

OVOCYLIN, Trade Mark Reg. U. S. Pat. Off. 2/1472D

Ciba

PHARMACEUTICAL PRODUCTS, INC., SUMMIT, NEW JERSEY

NEW PRESCRIPTION PRODUCTS

(Concluded from Page 198)

ORETON BUCCAL TABLETS (continued)

male and certain conditions amenable to androgen therapy in the female.

Administration: Tablet placed adjacent to buccal surface of the gums opposite the first molar tooth, from which absorption takes place in 30 to 60 minutes.

Source: Schering Corp., Bloomfield, N. J.

PENALEV TABLETS

Description: Penicillin tablets containing 50,000 units of penicillin free from excipients and binders A convenient dosage form for inhalation therapy, sublingual administration and addition to milk formulas.

Form Supplied: Vials of 12 tablets.

Action: Treatment of infectious diseases amenable to penicillin.

Administration: As directed.

Source: Sharp and Dohme, Philadelphia 1, Pa.

PROGYNON BUCCAL TABLETS

Description: Estradiol, 0.125 and 0.25 mg., tablets in special base for maximum buccal absorption.

Form Supplied: Bottles of 30 and 100 tablets.

Action: Treatment of estrogen deficiencies.

Administration: Tablet placed adjacent to buccal surface of the gums opposite the first molar tooth, from which absorption takes place in 30 to 60 minutes.

Source: Schering Corp., Bloomfield, N. J.

PROLUTON BUCCAL TABLETS

Description: Progesterone, 10 mg., tablets in special base for maximum buccal absorption.

Form Supplied: Bottles of 30 and 100 tablets.

Action: Treatment and prevention of habitual and threatened abortion, functional uterine bleeding, etc., amenable to progesterone therapy.

Administration: Tablet placed adjacent to buccal surface of the gums opposite the first molar tooth, from which absorption takes place in 30 to 60 minutes.

Source: Schering Corp., Bloomfield, N. J.

SOLUTHRICIN CONCENTRATE

Description: A solution of tyrothricin containing 25 mg. per cc. in a special solvent completely miscible with water. After dilution with water, the solution remains clear and potent for more than a year if refrigerated.

Form Supplied: 10-cc. and 20-cc. vials.

Action: Topical antibiotic.

Administration: Topically for infections amenable to tyrothricin.

Source: Sharp and Dohme, Philadelphia 1, Pa.

V. D. R. L. ANTIGEN

Description: Standardized antigen as developed by Venereal Disease Research Laboratories of the U. S. Public Health Service.

Form Supplied: 5-cc. vials of antigen mixture and 60-cc. vials of buffered saline diluent.

Action: Specific blood test for syphilis, effective in presence of malaria.

Administration: May be employed in either slide or test-tube test with serum or spinal fluid.

Source: Lederle Laboratories Division, American Cyanamid Co., Pearl River, N. Y.

SODIUM PROPIONATE FOR EYE INFECTIONS

Sodium Propionate N. F. may be a useful drug in treating eye infections, according to Dr. Frederick H. Theodore of New York. Reporting in the *Archives of Ophthalmology*, 41: 83 (1949), Dr. Theodore demonstrated that this drug, previously used only for mycotic infections of the skin, is also useful for treating infections of the eye as well.

The drug is nontoxic, nonirritaitng and apparently may be tolerated for many months without the development of sensitivity except in rare instances. It is ineffective in the treatment of virus diseases, however. Furthermore, owing to its effect on staphylococci, its use should diminish the tendency of acute staphylococcic conjunctivitis to become chronic. The favorable results noted occurred with the use of a 5% solution buffered to *p*H 7.3. Future studies will be made by Dr. Theodore to determine the optimum *p*H and concentration.

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Undergraduate courses in Pharmacy, Chemistry, Bacteriology or Biology lead to B.Sc. degrees and interesting and successful careers. Graduate studies in Pharmacy, Bacteriology or Biology also available. Applications for future enrollment now considered. Coeducational. Write for catalog.

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Founded in 1821

Facts About Conception Control

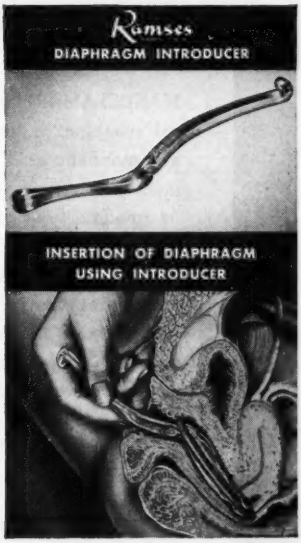
THE USE OF THE DIAPHRAGM INTRODUCER

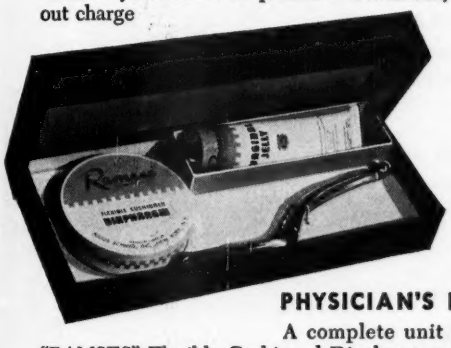
Use of a diaphragm introducer is favored by many patients who find manual manipulation objectionable or difficult. It facilitates the insertion and correct placement of the diaphragm, as well as its removal.

The "RAMSES"• Diaphragm Introducer provides the following features:

- Simplicity and convenience in use
- Safety – design minimizes possibility of injury to the cervix or accidental insertion into the urethra
- Smooth surface lessens bacterial proliferation – makes for easy cleaning
- Ease of removal assured by bluntly hooked end

The "RAMSES" Diaphragm Introducer is supplied in the Physician's Prescription Packet No. 501, without charge





Ramses
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PHYSICIAN'S PRESCRIPTION PACKET NO. 501

A complete unit for conception control. Contains (1) a "RAMSES" Flexible Cushioned Diaphragm of the prescribed size, (2) a "RAMSES" Diaphragm Introducer of corresponding size, and (3) a tube of "RAMSES" Vaginal Jelly† (regular size).

• The word "RAMSES" is a registered trademark of Julius Schmid, Inc.

† Active Ingredients: Dodecaethyleneglycol Monolaurate 5%; Boric Acid 1%; Alcohol 5%.

"RAMSES" Vaginal Jelly is accepted by the Council on Pharmacy and Chemistry of the American Medical Association. The "RAMSES" Diaphragm and Diaphragm Introducer are accepted by the Council on Physical Medicine of the American Medical Association.

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quality first since 1883

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MANDELAMINE

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NEPERA

MANDELAMINE,* a distinct chemical combination of methenamine and mandelic acid, ensures maximum patient-cooperation through its freedom from distressing side-effects, and the welcome simplicity of the regimen—just 3 or 4 tablets taken three times a day is all that is required. The absence of drug-fastness,[1] plus other important advantages, commends MANDELAMINE to experienced clinicians[2,3] for use in both acute and chronic urinary infections.

SUPPLIED: Enteric-coated tablets of 0.25 Gm. (3¾ grains), bottles of 120, 500, and 1,000.

*MANDELAMINE is the registered trademark of Nepera Chemical Co., Inc., for its brand of Hexydaline (methenamine mandelate).

1. Scudi, J. V., and Duca, C. J.: J. Urol. (Feb.) 1949. 2. Carroll, G., and Allen, H. N.: J. Urol. 55: 674 (1946). 3. Butt, A. J.: J. Florida M. A. 35: 430 (1949).

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Urinary Antiseptic of Choice—

for an effective and uncomplicated regimen

6 OUTSTANDING FEATURES

1 No gastric upset
2 No dietary or fluid regulation
3 No supplementary acidification (except when urea-splitting organisms occur)
4 Wide antibacterial range
5 No danger of drug-fastness
6 Simplicity of regimen—3 or 4 tablets, t.i.d.

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Parke, Davis & Company

ARE PLEASED TO RECORD THE ACHIEVEMENTS LEADING TO THE DEVELOPMENT OF

CHLOROMYCETIN

Trademark

(CHLORAMPHENICOL, PARKE-DAVIS)

CHLOROMYCETIN is a pure crystalline substance having specific antibiotic activity effective against an impressive array of micro-organisms.

In the history of CHLOROMYCETIN, chance has played little part. Starting from past knowledge of antibiotic activity in soil organisms, thousands of soil samples were collected throughout the world, cultured, and screened for antibiotic properties. Definite activity was found in cultures of *Streptomyces venezuelae*, an organism named for its place of origin. The active antibiotic was then isolated in pure form. Its chemical configuration was determined and reproduced by synthesis. CHLOROMYCETIN is therefore the first antibiotic for therapeutic use that can be produced by both natural and chemical methods.

The important indications for* CHLOROMYCETIN, *thus far, include:

UNDULANT FEVER · BACILLARY URINARY INFECTIONS
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TYPHUS FEVER · SCRUB TYPHUS · ROCKY MOUNTAIN SPOTTED FEVER

CHLOROMYCETIN can be administered efficiently by the oral route, yielding effective blood levels. It is supplied in Kapseals of 0.25 Gm.

CHLOROMYCETIN is being called to the attention of physicians by advertisements in leading Medical Journals.

Literature for your Physicians' Reference File is available on request.

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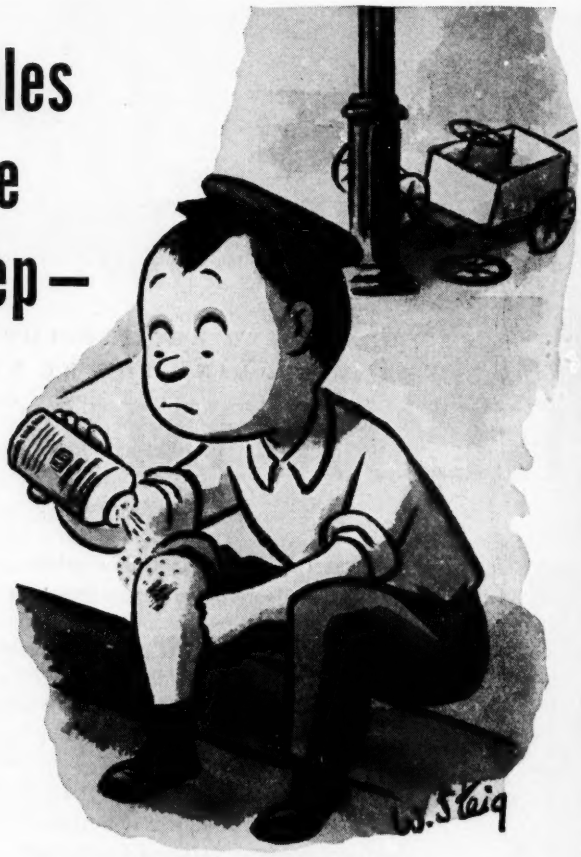
For troubles that are skin deep—



such as ABRASIONS...

Or for other minor skin miseries—cuts, scratches, burns, chafing, weeping eczema, dermatitis or fungus infections such as athlete's foot—B•F•I Antiseptic First-Aid Dressing and Surgical Dusting Powder makes ideal treatment.

Soothing, absorbent, astringent, protective, B•F•I Powder is easy to apply, spreads rapidly, clings tenaciously, and promotes healing without caking or forming hard crusts.

Supplied in ¼-oz., 1¼-oz., and ½-lb. sprinkler-top cans. Your profit on this well established household remedy is 50%, and of course, the bigger the unit sale, the larger your profit. Sharp & Dohme, Philadelphia 1, Pa.

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Antiseptic First-Aid Dressing and Surgical Dusting Powder

SHARP & DOHME

penicillin —CUTTER

℞ 7 penicillin products in 18 handy forms

℞ No. 1—HYPERCILLIN*

Crystalline salt of procaine penicillin G in a base of aluminum monostearate in sesame oil. Supplied in 1cc. and 10cc. vials—300,000 units per cc. Can be stored at room temperature for 12 months.

℞ No. 2—4-DAY HYPERCILLIN*

Micronized crystalline salt of procaine penicillin G in a special water-repellent base of 2% aluminum monostearate in peanut oil. Supplied in 1cc. and 10cc. vials—300,000 units per cc. Also, Cutter disposable syringe containing 1cc.—300,000 units. Can be stored for 12 months at room temperature.

℞ No. 3—WATER SOLUBLE PENICILLIN

Crystalline potassium penicillin G in rubber-stoppered vials. Supplied in 100,000; 200,000; 500,000 and 1,000,000 units. Can be stored 36 months at room temperature.

℞ No. 4—AQUEOUS PROCAINE PENICILLIN

300,000 units procaine penicillin G, and 60,000 units buffered crystalline potassium penicillin G per cc. Supplied in 5 dose bottle. Can be stored for 12 months at room temperature.

℞ No. 5—PENICILLIN ORAL TABLETS

Crystalline potassium penicillin G tablets buffered with calcium carbonate. Supplied in vials of 12, 25, 100 in 50,000 unit tablets and 12, 100 in 100,000 unit tablets. May be stored up to 18 months at room temperature.

℞ No. 6—PEN-TROCHES*

Crystalline potassium penicillin G troches massed without water. Supplied in moisture-proof vials of 20 troches—1,000 units and 25 troches—5,000 units.

℞ No. 7—PENICILLIN FOR INHALATION—CUTTER

Crystalline potassium penicillin G micronized. Supplied in packages containing 3 cartridges (100,000 units each) and 1 Cutter penicillin inhalation unit for administration.

Simplify your inventory maintenance by stocking Cutter's complete line of penicillin products. Cutter Laboratories, Berkeley 10, California.

**Cutter Trade Name*

restraint

Unromantic and prosaic as he eventually came to be,
the medicine man of another era once enjoyed great favor.
With no laws and little conscience to guide him,
his methods were bombastic, his speech grandiloquent.
No claim was too fantastic for him to make.
All that mattered was selling his "two-for-the-price-of-one" cure-all.
Here today, gone tomorrow—that was his motto.

Vigorous, intensive promotion of medicinals is still the rule,
but the methods of the roving medicine man belong
to the era of American folklore.
Ethics of the highest degree govern the promotion of Lilly Products.
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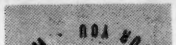
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